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HNF-EP-0182-117

Waste Tank Summary Report for Month Ending December 31, 1997

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and Waste Management

Fluor Daniel Hanford, Inc.
Richland, Washington

Hanford Management and Integration Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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B. M. Hanlon
Lockheed Martin Hanford Corp.

Date Published
March 1998

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RELEASE AUTHORIZATION	
Document Number:	HNF-EP-0182-117
Document Title:	Waste Tank Summary Report for Month Ending December 31, 1997
Release Date:	3/16/98

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz

Kara M. Broz

March 16, 1998

A-6001-400 (07/94) WEF256

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WASTE TANK SUMMARY REPORT

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 5820.2A, Chapter I, Section 3.e. (3) (DOE-RL, 1990, Radioactive Waste Management, U. S. Department of Energy-Richland Operation Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.

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METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons

$$^\circ F = \left(\frac{9}{5} \, ^\circ C \right) + 32$$

1 Btu/h = 2.930711 E-01 watts
(International Table)

WASTE TANK SUMMARY REPORT
FOR MONTH ENDING DECEMBER 31, 1997

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks[c]	28 double-shell	10/86
Single-Shell Tanks[a]	149 single-shell	07/88
Assumed Leaker Tanks[f]	67 single-shell	7/93
Sound Tanks	28 double-shell 82 single-shell	1986 7/93
Interim Stabilized Tanks[b,d]	119 single-shell	11/97
Not Interim Stabilized [f]	30 single-shell	11/97
Intrusion Prevention Completed[e]	108 single-shell	09/96
Controlled, Clean, and Stable[i]	36 single-shell	09/96
Watch List Tanks [g] Total	32 single-shell 6 double-shell 38 tanks	9/96[h] 6/93

[a] All 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980.

[b] Of the 119 tanks classified as Interim Stabilized, 64 are listed as Assumed Leakers. The total of 119 Interim Stabilized tanks includes one tank that does not meet current established supernatant and interstitial liquid stabilization criteria. (See Table I-1 footnotes, item #2)

[c] Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510.

[d] Of the 32 single-shell tanks on Watch Lists, 11 have been Interim Stabilized.

[e] Of the 32 single-shell tanks on Watch Lists, 11 have completed Intrusion Prevention (this category replaced Interim Isolation). (See Appendix C for "Intrusion Prevention" definition).

[f] Four of these tanks are Assumed Leakers. (See Table H-1)

[g] See Section A tables for more information on Watch List Tanks. Eight tanks (A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107) are currently on more than one Watch List.

[h] Dates for the Watch List tanks are "officially added to or removed from the Watch List" dates. (See Table A-1, Watch List Tanks, for further information.)

[i] The TY tank farm was officially declared Controlled, Clean, and Stable in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996. (BX-103 has been declared to have met current interim stabilization criteria, and is included in CCS - see also Appendix I).

II. WASTE TANK INVESTIGATIONS

This section includes all single-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell radiation level increases in excess of established criteria.

There are currently no tanks under investigation for ILL decreases or drywell radiation level increases which exceed the criteria. Drywell monitoring is done on an "as needed basis" with the exception of tanks C-105 and C-106 which are monitored monthly.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix C for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, or b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker.

There are currently no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Candidate Intrusion List: Increase criteria in the following tanks indicate possible intrusions; however, no funds were allocated for performing intrusion investigations in FY 1998.

Tank 241-B-202
Tank 241-BX-101
Tank 241-BX-103
Tank 241-C-101

244-AR Tanks and Sumps: Currently, all ventilation systems at 244-AR are shut down. Based on the weight factor gauges for the sumps and tanks, Tank 001 contains 1300 gallons, Tank 002 contains 12,250 gallons, Tank 003 contains 2000 gallons, and Tank 004 contains 250 gallons. Sump 001 contains 360 gallons, Sump 002 contains 0-2 gallons, and Sump 003 contains 3030 gallons. No change in tank contents. These volumes were updated November 30, 1997. **Status of jet pumping: first attempts at jetting were unsuccessful. Additional air and fewer restrictions are planned for next attempt which will be next fiscal year.**

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Single-Shell Tanks Saltwell Jet Pumping (See Table E-6 footnotes for further information)

Tank 241-SX-104 - The saltwell pump was started September 26, 1997; 200 gallons were pumped in September before the transfer line between SX-104 and 244-S became plugged. **The transfer line between SX-104 and 244-S has been unplugged. The pits have been reconfigured and the transfer route re-established. The flush line for the pump recirculation loop was reconfigured and placed inside the pit, to meet new Basis for Interim Operation (BIO) requirements.**

A two-inch drop in the waste was recorded on December 10. It was determined that heavy atmospheric pressures occurred December 10 and 11, entering the tank through its vents to increase the internal barometric pressures to push the liquids down, causing the fluctuation in readings. The level was back up to normal by December 16. A re-leak investigation was initiated and was still in progress at the end of December.

Tank 241-T-104 - Pumping started March 24, 1996. The pump failed in August and was replaced; pumping resumed in September and 5.2 Kgallons were pumped in October. Pumping was suspended October 18 for flammable gas issues, and resumed January 4, 1997. 1.6 Kgallons were pumped in January; no pumping was done in February and March, pending completion of the transfer line pressure test. Pumping resumed April 17. Pumping is shut down periodically to allow DCRT transfers, and then pumping resumes. **No pumping was done in December.** A total of 118.2 Kgallons has been pumped from this tank.

Tank 241-T-110 - Approval was received to reclassify this tank as a Facility Group 3, to allow pumping per the flammable gas JCO Standing Order. Pumping started May 12, 1997. **The flush line for the recirculation loop for the saltwell pump was reconfigured on December 31, 1997. The drain was cleared and verified that it drains properly. No pumping was done in December**. A total of 17.3 Kgallons has been pumped from this tank.

2. Single-Shell Tank TPA Interim Stabilization Milestones

All M-41-xx Milestones are being renegotiated. See also Table I-2, Tri-Party Agreement Single-Shell Tank Interim Stabilization Schedule.

3. Tank Waste Remediation System Safety Initiatives

The U. S. Secretary of Energy has directed that six safety initiatives be implemented in the Tank Waste Remediation System Program to accelerate the mitigation/resolution of the high priority waste tank safety issues at the Hanford Site. Forty-two milestones were established for accomplishing the initiatives.

No Safety Initiatives were scheduled to be completed in December.
There are three Safety Initiatives left to be completed, scheduled for late 1998.

4. Double-Shell Tank 241-SY-101 Waste Level Increase

Although the waste level in tank SY-101 has risen slowing and steadily since last February, the surface level and hydrogen venting are within safety and operating limits. A mixer pump was installed in the tank in July 1993, which circulates liquid wastes from the tank's upper layer down to the bottom where jet nozzles discharge the fluid about two feet from the bottom. This prevents gas bubbles from building up at the bottom, and results in venting of small steady gas releases, rather than in large infrequent gas releases. Investigations continue on why the surface level is rising. The tank is venting the same volumes of hydrogen now as before the surface began rising, which indicates massive amounts of gas are not collecting within the tank. (See also Item #8 below, Off-Normal Occurrence Report RL-PHMC-TANKFARM-1997-0106)

5. Double-Shell Tank 241-SY-103 Gas Release Event

A gas release event (GRE) began in tank 241-SY-103 on December 7 at 1:24 a.m. The narrow range Whittaker cell shows a sharp spike at 1:24 a.m., from 90 ppm to 1990 ppm (0.199 vol%) hydrogen. By 1:27 a.m., the hydrogen concentration was 710 ppm. By 1:31 a.m., the hydrogen concentration had increased again to 2060 ppm. It decreased to 1170 ppm by 1:32 a.m. The hydrogen concentration began to steadily decrease at this time from about 1200 ppm. At 9:30 a.m. (December 8), the hydrogen concentration was at 170 ppm (about 70 ppm above baseline levels). The maximum hydrogen concentration measured, 2060 ppm, is 8.2% of our administrative lower flammability limit (LFL) and 5.2% of the actual LFL. The peak hydrogen concentration was not near 25% of either LFL.

The amount of hydrogen released is estimated to be about 111 cubic feet. The vent flow rate, estimated from the hydrogen concentration decay curve, was calculated to be 110 cfm.

The surface level has dropped 1.48 inches according to the ENRAF level gauge. No waste temperature changes were seen near either the thermocouple tree in riser 4A or near the MIT in riser 17B.

The ammonia concentrations measured at the SY tank farm stack increased from 50 ppm before the release to 138 ppm by 11:01 a.m. on December 7.

6. Double-Shell Tank 241-AN-105 Gas Release Event

A gas release event (GRE) in tank 241-AN-105 on December 31 at 11:26 p.m. The narrow range Whittaker cell showed a steady increase from 200 ppm hydrogen to 3940 ppm hydrogen (0.394 vol%) between 11:26 p.m. on December 31 and 1:07 a.m. on January 1. The concentration then began to decrease, and the current reading is 400 ppm hydrogen. Other peak gas concentrations from the gas characterization system (GC and FTIR) are:

H2	**3316 ppm**
N20	**763 ppm**
CH4	**53 ppm**
NH3	**112 pm**

The amount of hydrogen released is estimated to be about 165 cubic feet. The vent flow rate, estimated from the hydrogen concentration decay curve, was calculated to be 75 cfm.

The surface level rose about 0.5 inches during the gas release and now is decreasing. The level is currently 410.19 inches, according to the ENRAF level gauge. The level before the GRE was 410.04 inches.

No waste temperature changes were seen near either the thermocouple tree in riser 4A or the MIT in riser 15A. The dome space pressure rose about 0.1 inch w.g. and remained elevated for about 10 minutes.

The lower flammability limit (LFL) of hydrogen in air is 40,000 volume parts per million (vppm). The administrative limit set by the Flammable Gas Project, which requires TWRS management review of the tank conditions, is 6,250 vppm hydrogen. This is also the concentration at which the SHMS high hydrogen alarm activates. The concentration limit at which RL is to notify the Washington State Department of Ecology (WDOE) of a gas release event is 4,000 vppm hydrogen (10% of LFL).

The maximum concentration reached during this GRE did not exceed the LFL of hydrogen in air.

The maximum concentration reached during this GRE did not exceed the administrative limit for TWRS management review.

The maximum concentration reached during this GRE did not exceed the limit requiring notification of WDOE.

7. Characterization Progress Status (See Appendix J)

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to ensure safe storage and interim operation, and ultimate disposition of the waste.

Characterization Progress for December:

Single shell tanks SX-101 and SX-106 were push mode core sampled this month for the first time. Tanks T-101, TX-108 and TX-117 were vapor sampled, which are the first Data Quality Objective-driven sampling efforts for these three tanks.

At present, there have been 161 out of 177 tanks sampled in one form or another; 30 of which have been for headspace vapor samples only. Analyses of all DQO issues are complete for 36 tanks.

8. RL-PHMC-TANKFARM-1997-0106, Off-Normal Occurrence Report, "Potential Inadequacy in the Authorization Basis for Tank 241-SY-101," dated December 30, 1997

On December 29, 1997, an Unreviewed Safety Question (USQ) screening on a potential inadequacy in the Authorization Basis for tank SY-101 was presented to the TWRS Plant Review Committee (PRC). During

1997, the tank waste surface level in SY-101 began to increase in a manner which is not consistent with its previous behavior. Other waste parameters continue to remain consistent with the historical trends. The PRC concurred with the conclusion of the USQ screening and declared that a discovery exists in relation to the current waste level behavior in the tank. No limitations to plant operations were imposed as a result of this discovery.

In 1993, a mixer pump was installed in this tank. The pump was installed in the waste to mix the tank contents. This causes the gasses to be released continuously and prevents episodic gas releases. When the mixer pump was installed, the waste surface level in the tank was 406 inches. After a few months of pump operation, the waste level had decreased to below 400 inches. This level remained stable with no significant trends for the past four years. The surface level in SY-101 has historically been used as an indirect measure of gas retained in the tank waste. Increased retention of gas bubbles causes the waste level to rise, while the release of gas causes the level to drop.

The surface level in SY-101 has risen from 397.5 inches to 400.5 inches in 1997. The mixer pump long-term operation plan controls state that aggressive operations should be considered by the Test Review Group (TRG) when the surface level reaches 399.5 inches. On October 27, 1997, the number of pump runs was increased from three per week to four per week. This increase in the number of pump runs did not slow the surface level growth as suggested by the long-term operation plan. The increased operation of the mixer pump may have accelerated the rate of level growth of the tank waste. On December 9, 1997, the TRG determined that pump operations would return to three pump runs per week.

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APPENDIX A

WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE A-1. WATCH LIST TANKS

December 31, 1997

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These tanks have been identified as the Priority 1 Hanford Site Tank Farm Safety Issues: "Issues/situations that contain most necessary conditions that could lead to worker (onsite) or offsite radiation exposure through an uncontrolled release of fission products, e.g., SY-101."

Single-Shell Tanks

Tank No.	Watch List	Officially Added to Watch List
A-101 (*)	Hydrogen	1/91
	Organics	5/94
AX-101	Hydrogen	1/91
AX-102	Organics	5/94
AX-103	Hydrogen	1/91
B-103	Organics	1/91
C-102	Organics	5/94
C-103	Organics	1/91
C-106	High Heat Load	1/91
S-102 (*)	Hydrogen,	1/91
	Organics	1/91
S-111 (*)	Hydrogen	1/91
	Organics	5/94
S-112	Hydrogen	1/91
SX-101	Hydrogen	1/91
SX-102	Hydrogen	1/91
SX-103 (*)	Hydrogen	1/91
	Organics	5/94
SX-104	Hydrogen	1/91
SX-105	Hydrogen	1/91
SX-106 (*)	Hydrogen,	1/91
	Organics	1/91
SX-109	Hydrogen because other tanks vent thru it	1/91
T-110	Hydrogen	1/91
T-111	Organics	2/94
TX-105	Organics	1/91
TX-118	Organics	1/91
TY-104	Organics	5/94
U-103 (*)	Hydrogen	1/91
	Organics	5/94
U-105 (*)	Hydrogen	1/91
	Organics	5/94
U-106	Organics	1/91
U-107 (*)	Organics	1/91
	Hydrogen	12/93
U-108	Hydrogen	1/91
U-109	Hydrogen	1/91
U-111	Organics	8/93
U-203	Organics	5/94
U-204	Organics	5/94
32 Tanks (*)		

Double-Shell Tanks

Tank No.	Watch List	Officially Added to Watch List
AN-103	Hydrogen	1/91
AN-104	Hydrogen	1/91
AN-105	Hydrogen	1/91
AW-101	Hydrogen	6/93
SY-101	Hydrogen	1/91
SY-103	Hydrogen	1/91
6 Tanks		

TANKS BY WATCH LIST

Hydrogen	Organics	High Heat
A-101	A-101	C-106
AX-101	AX-102	1 Tank
AX-103	B-103	
S-102	C-102	
S-111	C-103	
S-112	S-102	
SX-101	S-111	
SX-102	SX-103	
SX-103	SX-106	
SX-104	T-111	
SX-105	TX-105	
SX-106	TX-118	
SX-109	TY-104	
T-110	U-103	
U-103	U-105	
U-105	U-106	
U-107	U-107	
U-108	U-111	
U-109	U-203	
AN-103	U-204	
AN-104	20 Tanks	
AN-105		
AW-101		
SY-101		
SY-103		
25 Tanks		

32 Single-Shell tanks
6 Double-Shell tanks
38 Tanks on Watch Lists

(*) Eight tanks are on more than one Watch List

All tanks were removed from the Ferrocyanide Watch List; see Table A-2 for list and dates.

TABLE A-2. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR

December 31, 1997

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

								Total Tanks (1)		
	Ferrocyanide		Hydrogen		Organics		High Heat	SST	DST	Total
1/91 Original List -Response to Public Law 101-510	23		23		8		1	47	5	52
Added 2/91 (revision to Original List)	1	T-107						1		1
Total - December 31, 1991	24		23		8		1	48	5	53
Added 8/92			1	AW-101					1	1
Total - December 31, 1992	24		24		8		1	48	6	54
Added 3/93					1	U-111		1		
Deleted 7/93	-4	(BX-110) (BX-111) (BY-101) (T-101)						-4		
Added 12/93			1	(U-107)				0		
Total - December 31, 1993	20		25		9		1	45	6	51
Added 2/94					1	T-111		1		
Added 5/94					10	A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		
Deleted 11/94	-2	(BX-102) (BX-106)						-2		
Total - December 31, 1994, & December 31, 1995	18		25		20		1	48	6	54
Deleted 6/96	-4	(C-108) (C-109) (C-111) (C-112)						-4		
Deleted 9/96	-14	(BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)						-12		
Total - December 31, 1997	0		25		20		1	32	6	38

(1) Eight tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107; therefore the total of tanks added or deleted will depend upon whether a tank is also on another list.

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

December 31, 1997

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. See footnote (3). Temperatures below are the highest temperatures recorded in these tanks during this month, and do not exceed the maximum criteria limit for this month.

Temperatures in Degrees F.
Total Waste in Inches

Hydro/Flammable Gas			Organic Salts			High Heat		
Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste
A-101	148	347	A-101	148	347	C-106 (2)	146	72
AX-101 (*)(3)	132	272	AX-102 (*)	76	14	1 Tank		
AX-103 (*)	112	40	B-103 (*)(3)	65	17			
S-102	105	207	C-102	82	149			
S-111	90	224	C-103	116	66			
S-112	84	239	S-102	105	207			
SX-101	134	171	S-111	90	224			
SX-102	143	203	SX-103	165	242			
SX-103	165	243	SX-106	107	201			
SX-104	158	229	T-111	64	158			
SX-105	171	254	TX-105	97	228			
SX-106	107	201	TX-118	74	134			
SX-109 (1)	144	96	TY-104	65	24			
T-110	63	133	U-103	86	166			
U-103	86	166	U-105	89	147			
U-105	89	147	U-106	81	78			
U-107	79	143	U-107	79	166			
U-108	87	166	U-111	80	115			
U-109	83	164	U-203	61	6			
AN-103	112	955	U-204	63	9			
AN-104	113	384	20 Tanks					
AN-105	108	410						
AW-101 (*)	101	410						
SY-101	120	405						
SY-103	95	270						
25 Tanks								

(*) Temperatures in these tanks are taken manually on a weekly basis.

38 Tanks are on the Watch List (8 tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, U-107)

All tanks have been removed from the Ferrocyanide Watch List. See Table A-2 for list and dates.

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS
(sheet 2 of 2)

Notes:

Unreviewed Safety Question(USQ):
There is a USQ currently associated with all single-shell tanks, resulting in special controls required, and limiting the work in the tanks. Pumping is on hold until the DOE-RL approval is received for each tank.

Hydrogen/Flammable Gas:
Tanks which are suspected to have a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks is due of the potential consequences of a radiological release resulting from a flammable gas burn, an event not analyzed in the SST Safety Analysis Report (SAR).

Organic Salts:
Single-shell tanks containing concentrations of organic salts ≥3 weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). The USQ associated with these tanks is because it has been concluded there is a small potential for an organic nitrate accident. Double-shell tanks have >3 weight% TOC but are not on the Watch List because they contain mostly liquid, and there is no credible organic safety concern for tanks which contain mostly liquid.

High Heat:
Tanks which contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. Only tank C-106 is on the High Heat Watch List because in the event of a leak, without water additions the tank could exceed temperature limits resulting in unacceptable structural damage. The tank is cooled through evaporation in conjunction with active ventilation. Water is periodically added as evaporation takes place.

Active ventilation:
There are 15 single-shell tanks on active ventilation (eight are on the Watch List as indicated by an asterisk):

C-105	SX-107
C-106 *	SX-108
SX-101 *	SX-109 *
SX-102 *	SX-110
SX-103 *	SX-111
SX-104 *	SX-112
SX-105 *	SX-114
SX-106 *	

Note: A-104, 105 and 106 exhauster has been out of service since 1991 and is no longer considered actively ventilated. Although C-104 has a cascade line with C-105, it is not considered to be actively ventilated.

Footnotes:

(1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it.

(2) Tank C-106 is on the Watch List because in the event of a leak without water additions the tank could exceed temperature limits resulting in unacceptable structural damage.

(3) There are no in-waste temperatures for tanks AX-102 and B-103. The waste level in these tanks is lower than the lowest thermocouple in these trees. Temperatures in this table show the maximum in the tanks taken in the vapor space.

TABLE A-4. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS

December 31, 1997

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/hr)

Ten tanks have high heat loads for which temperature surveillance requirements are established by SD-WM-OSR-005 and OSD-T-151-00013. Only one of these tanks (241-C-106) is on the High Heat Watch List. In an analysis, WHC-SD-WM-ER-333, "Evaluation of Heat Sources in High Heat Single Shell Tanks," Bander, 1994, it was determined that six of the ten tanks have heat sources greater than 40,000 Btu/h. Additionally, although four tanks have heat loads less than 40,000 Btu/h, it is recommended that these tanks remain on the High Heat Load List due to uncertainties in the parameters used in these analyses. It is estimated that the current analysis predicts the heat loads within +/- 20%.

Temperatures in these tanks did not exceed OSR or OSD requirements for this month. All high heat load tanks, with the exception of 241-A-104 and 241-A-105, are on active ventilation. All high heat load tanks are monitored by the Tank Monitor and Control System (TMACS), with the exception of A-104 and A-105, which are taken manually on a weekly basis.

Tank No.	Temperature (F.)	Total Waste In Inches
A-104	170	10
A-105	139	07
C-106 (*)	146	72
SX-107	165	43
SX-108	186	37
SX-109	144	96
SX-110	162	28
SX-111	189	51
SX-112	147	39
SX-114	180	71
10 Tanks		

(*) C-106 on High Heat Load Watch List

Highest temperature in 34 lateral thermocouples beneath A-105: 242

SINGLE SHELL TANKS WITH LOW HEAT LOADS (<=40,000 Btu/hr)

There are 108 low heat load non-watch list tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. Temperatures obtained were within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

Tank No.	Tank No.
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

December 31, 1997

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:

All Watch List and High Heat tank temperature monitoring is in compliance. (4)

All Dome Elevation Survey monitoring is in compliance.

All Psychrometrics monitoring is in compliance (2).

Drywell monitoring is done "as needed" (9).

In-tank photos/videos are taken "as needed" (3)

LEGEND:	
(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ ENRAF	= Surface level measurement devices
OSR	= Operational Safety Requirements, SD-WM-OSR-005
OSD	= Operating Specifications Doc., OSD-T-151-00013, -00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSR,OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
A-101	X			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104		X		None	None	None		None
A-105		X		None		None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(10)
AX-102	X			None		None	None	None
AX-103	X			None	None	None		None
AX-104				None	None	None		None
B-101				None	None		None	None
B-102				ENRAF	None	None		None
B-103	X			None	None		None	O/S
B-104				LOW		None	None	
B-105				LOW		None	None	
B-106				FIC	None		None	None
B-107				None		None	None	None
B-108				None	None		None	None
B-109				None		None	None	None
B-110				LOW		None	None	
B-111				LOW	None		None	
B-112				ENRAF	None	None		None
B-201				MT		None	None	None
B-202				MT		None	None	None
B-203				MT		None	None	None
B-204				MT		None	None	None
BX-101				ENRAF	None	None		None
BX-102				None	None	None		None
BX-103				ENRAF	None	None		None
BX-104			None	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSR,OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
BX-108				None	None	None		None
BX-109				None	None	None		None
BX-110				None	None	None		None
BX-111				LOW	None	None		
BX-112				ENRAF	None	None		None
BY-101				LOW		None	None	
BY-102			None	LOW		None	None	
BY-103				LOW	None	None		
BY-104				LOW		None	None	
BY-105				LOW		None	None	
BY-106				LOW		None	None	
BY-107				LOW		None	None	
BY-108				None		None	None	None
BY-109			None	LOW	None		None	
BY-110				LOW	None	None		
BY-111				LOW	None	None		
BY-112				LOW		None	None	
C-101				None		None	None	None
C-102	X			None	None		None	None
C-103	X			ENRAF	None	None		None
C-104				None	None		None	None
C-105				None	None	None		None
C-106 (3)	X	X		ENRAF	None	None		None
C-107				ENRAF	None	None		None
C-108				None		None	None	None
C-109				None		None	None	None
C-110				MT		None	None	None
C-111				None		None	None	None
C-112				None	None	None		None
C-201				None		None	None	None
C-202				None		None	None	None
C-203				None		None	None	None
C-204			None	None		None	None	None
S-101				ENRAF	None	None		
S-102	X			ENRAF	None	None		
S-103				ENRAF	None	None		
S-104				LOW		None	None	
S-105				LOW	None	None		
S-106				ENRAF	None	None		
S-107				ENRAF	None	None		None
S-108				LOW	None	None		
S-109				LOW	None	None		
S-110				LOW	None	None		
S-111	X			ENRAF	None	None		
S-112	X			LOW	None	None		
SX-101	X			LOW	None	None		
SX-102	X			LOW	None	None		
SX-103	X			LOW	None	None		
SX-104	X			LOW	None	None		
SX-105	X			LOW	None	None		
SX-106	X			ENRAF	None	None		
SX-107		X		None		None	None	None
SX-108		X		None		None	None	None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSR,OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
SX-109 (3)	X	X		None		None	None	None
SX-110		X		None		None	None	None
SX-111		X		None		None	None	None
SX-112		X		None		None	None	None
SX-113				None		None	None	None
SX-114		X		None		None	None	None
SX-115			None	None		None	None	None
T-101				None	None	None		None
T-102			None	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW	None	None		
T-105			None	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None		None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111	X			LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT		None	None	None
T-202				MT		None	None	None
T-203				None		None	None	None
T-204				MT		None	None	None
TX-101			None	ENRAF	None	None		None
TX-102				LOW	None	None		
TX-103				None	None	None		None
TX-104				None	None	None		None
TX-105	X			None	None	None		None (7)
TX-106				LOW	None	None		
TX-107				None	None	None		None
TX-108				None	None	None		None
TX-109				LOW	None	None		
TX-110			None	LOW	None	None		
TX-111				LOW	None	None		
TX-112				LOW	None	None		
TX-113				LOW	None	None		
TX-114			None	LOW	None	None		
TX-115				LOW	None	None		
TX-116			None	None	None	None		None
TX-117			None	LOW	None	None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	None	None		None
TY-106				None	None	None		None
U-101				MT		None	None	None
U-102				LOW	None	None		
U-103	X			ENRAF	None	None		
U-104			None	None		None	None	None
U-105	X			ENRAF	None	None		
U-106	X			ENRAF	None	None		

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 4 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSR,OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			ENRAF	None	None		
U-110				None	None	None		None
U-111	X			LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203	X			None		None	None	None
U-204	X			MT		None	None	None
Catch Tanks and Special Surveillance Facilities								
A-302-A	N/A	N/A	N/A	(6)	None	None		None
A-302-B	N/A	N/A	N/A	(6)		None	None	None
ER-311	N/A	N/A	N/A	(6)	None		None	None
AX-152	N/A	N/A	N/A	(6)		None	None	None
AZ-151	N/A	N/A	N/A	(6)	None		None	None
AZ-154	N/A	N/A	N/A	(6)		None	None	None
BX-TK/SMP	N/A	N/A	N/A	(6)		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
AR-204	N/A	N/A	N/A	(6)			None	None
A-417	N/A	N/A	N/A	(6)	None	None	None	None
A-350	N/A	N/A	N/A	(6)	None	None	None	None
CR-003	N/A	N/A	N/A	(6)	None	None	None	None
Vent Sta.	N/A	N/A	N/A	(6)		None	None	None
S-302	N/A	N/A	N/A	(6)	None	None		None
S-302-A	N/A	N/A	N/A	(6)	None		None	None
S-304	N/A	N/A	N/A	(6)	None		None	None
TX-302-B	N/A	N/A	N/A	(6)		None	None	None
TX-302-C	N/A	N/A	N/A	(6)	None	None		None
U-301-B	N/A	N/A	N/A	(6)	None	None		None
UX-302-A	N/A	N/A	N/A	(6)	None	None		None
S-141	N/A	N/A	N/A	(6)		None	None	None
S-142	N/A	N/A	N/A	(6)		None	None	None
Totals: 149 tanks	32 Watch List Tanks (4)	10 High Heat Tanks (4)	N/C: 0		N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 5 of 6)

Footnotes:

1. All SSTs have either manual tape, FIC, (or ENRAF) surface level measuring devices. Some also have zip cords.

   ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table A-7 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are taken on an "as needed" basis with the exception of tanks C-105 and C-106. Hanford Federal Facility Agreement and Consent Order," Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment 1994 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105 and C-106 on a monthly frequency.

3. C-106 and SX-109 - these tanks are on both category lists (Watch List and high heat list) - C-106 is the only tank on the high heat list included on the High Heat Watch List; SX-109 is on the Organics Watch List, and also on the high heat list (but not on the High Heat Watch List).

4. Temperature readings may be regulated by OSD or POP. Temperatures cannot be obtained in 13 low heat load tanks (see Table A-4). The OSD does not require readings or repair of out-of service thermocouples for the low heat load ($\leq$40,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

   Temperatures for many tanks are monitored continuously by TMACS; see Table A-8, TMACS Monitoring Status.

5. Document WHC-OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed. Non-interim-stabilized tanks will have drywell surveys taken as a backup on a monthly basis if surface or interstitial level measurement equipment is unavailable. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

6. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

   Catch tanks 240-S-302 and 241-S-302-A are monitored for intrusions only, and are not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

   Weight Time Factor is the surface level measuring device currently used in A-417, A-350 and 244-A-Tank/Sump. DCRT CR-003 is inactive and measured in gallons.

7. Document WHC-SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 6 of 6)

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203*	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

Total - 34 Tanks *Surface level in C-203 is below 24 inches, therefore this tank is added to the list

8. TX-105 - the riser has been removed; the LOW has not been monitored since January 1987. Liquid levels are being taken.

9. All drywell scans are done by request only, when required in addition to, or as a BACKUP for, a PRIMARY leak detection method, per OSD-T-151-00031. Currently, there are only two tanks which require drywell scans (C-105 and C-106); these are taken monthly.

   Only two tank farms, A and SX, have laterals. There are currently no functioning laterals and no plans to prepare these for use.

10. AX-101 - LOW reading taken by gamma rather than neutron sensor.

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

December 31, 1997

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month.

NOTE:

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and in-tank photos/videos are taken "as needed" (2)

LEGEND:	
(Shaded)	= In compliance with all applicable documentation
N/C	= Noncompliance with applicable documentation
FIC/ENRAF M.T.	= Surface level measurement devices
OSR	= SD-WM-OSR-016, SD-WM-OSR-004
OSD	= OSD-T-151-0007, OSD-T-151-0031
None	= no M.T., FIC or ENRAF installed
O/S	= Out of Service
W.F.	= Weight Factor
Rad.	= Radiation

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSR, OSD)			Radiation Readings: Leak Detection Pits (4) (OSR, OSD)		Radiation Readings: Annulus (OSD)
			M.T.	FIC	ENRAF	W.F.	Rad. (8)	
AN-101				None			(8)	
AN-102					None		(8)	
AN-103	X			None			(8)	
AN-104	X		O/S	None			(8)	
AN-105	X		O/S	None			(8)	
AN-106					None		(8)	
AN-107					None		(8)	
AP-101			O/S		None	O/S (9)	(8)	
AP-102					None	O/S (9)	(8)	
AP-103					None	O/S (9)	(8)	
AP-104			O/S		None	O/S (9)	(8)	
AP-105					None	O/S (9)	(8)	
AP-106					None	O/S (9)	(8)	
AP-107					None	O/S (9)	(8)	
AP-108				O/S	None	O/S (9)	(8)	
AW-101	X		O/S	None			(8)	
AW-102					(6)		(8)	
AW-103				None			(8)	
AW-104				None			(8)	
AW-105				None			(8)	
AW-106				None			(8)	
AY-101				None		O/S	(8)	(5)
AY-102				None	None		(8)	(5)
AZ-101			O/S	None			(8)	(5)
AZ-102					None		(8)	(5)
SY-101	X			None			O/S (7)	
SY-102				None			O/S	
SY-103	X			None			O/S (7)	
Totals: 28 tanks	6 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.

2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.

3. OSD specifies double-shell tank temperature limits, gradients, etc.

4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (8) below.

5. AY-102 annulus is O/S to facilitate vent line removal for Project W-030: Leak Detection Probe device is still monitored. AY-101 and AZ-101/102 are monitored only by the annulus Leak Detection Probe Measurement device.

6. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.

7. SY-101 and SY-103 had intermittent radiation readings due to power problems.

8. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms with the exception of SY-Farm.

   Also, two radiation monitors used for leak detection for transfer lines will not be discontinued (CRM-101B in AY farm and CRM-101/102-1 in AZ farm) - these were not included in the USQ.

9. Weekly readings being obtained by Instrument Technicians in these tanks:
   AP-103C (for tanks AP-101 - 104)
   AP-105C (for tanks AP-105 - 108)

TABLE A-7. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND DATA INPUT METHODS

December 31, 1997

LEGEND

- CASS = Computer Automated Surveillance System
- SACS = Surveillance Analysis Computer System
- TMACS = Tank Monitor and Control System
- Auto = Automatically entered into TMACS and electronically transmitted to SACS
- Manual = EITHER manually entered into CASS by field operators and electronically transmitted to SACS OR manually entered directly into SACS by surveillance personnel, from Field Data sheets

EAST AREA						WEST AREA					
Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Manual	B-201			S-101	02/95	Manual	TX-101	11/95	Auto
A-102			B-202			S-102	05/95	Manual	TX-102	05/96	Auto
A-103	07/96	Manual	B-203			S-103	06/94	Auto	TX-103	12/95	Auto
A-104	05/96	Manual	B-204			S-104			TX-104	03/96	Auto
A-105			BX-101	04/96	Auto	S-105	07/95	Manual	TX-105	04/96	Auto
A-106	01/96	Manual	BX-102	06/96	Auto	S-106	06/94	Auto	TX-106	04/96	Auto
AN-101	08/96	Manual	BX-103	04/96	Auto	S-107	06/94	Auto	TX-107	04/96	Auto
AN-102			BX-104	05/96	Auto	S-108	07/95	Manual	TX-108	04/96	Auto
AN-103	08/95	Manual	BX-105	03/96	Auto	S-109	08/95	Manual	TX-109	11/95	Auto
AN-104	08/95	Manual	BX-106	07/94	Auto	S-110	08/95	Manual	TX-110	05/96	Auto
AN-105	08/95	Manual	BX-107	06/96	Auto	S-111	08/94	Auto	TX-111	05/96	Auto
AN-106			BX-108	05/96	Auto	S-112	05/95	Manual	TX-112	05/96	Auto
AN-107			BX-109	08/95	Auto	SX-101	04/95	Manual	TX-113	05/96	Auto
AP-101			BX-110	06/96	Auto	SX-102	04/95	Manual	TX-114	05/96	Auto
AP-102			BX-111	05/96	Auto	SX-103	04/95	Manual	TX-115	05/96	Auto
AP-103			BX-112	03/96	Auto	SX-104	05/95	Manual	TX-116	05/96	Auto
AP-104			BY-101			SX-105	05/95	Manual	TX-117	06/96	Auto
AP-105			BY-102			SX-106	08/94	Auto	TX-118	03/96	Auto
AP-106			BY-103	12/96	Manual	SX-107			TY-101	07/95	Auto
AP-107			BY-104			SX-108			TY-102	09/95	Auto
AP-108			BY-105			SX-109			TY-103	09/95	Auto
AW-101	08/95	Manual	BY-106			SX-110			TY-104	06/95	Auto
AW-102	05/96	Manual	BY-107			SX-111			TY-105	12/95	Auto
AW-103	05/96	Manual	BY-108			SX-112			TY-106	12/95	Auto
AW-104	01/96	Manual	BY-109			SX-113			U-101		
AW-105	06/96	Manual	BY-110	2/97	Manual	SX-114			U-102	01/96	Manual
AW-106	06/96	Manual	BY-111	2/97	Manual	SX-115			U-103	07/94	Auto
AX-101	09/95	Manual	BY-112			SY-101	07/94	Auto	U-104		
AX-102			C-101			SY-102	06/94	Manual	U-105	07/94	Auto
AX-103	09/95	Manual	C-102			SY-103	07/94	Manual	U-106	08/94	Auto
AX-104	10/96	Manual	C-103	08/94	Auto	T-101	05/95	Manual	U-107	08/94	Auto
AY-101	03/96	Manual	C-104			T-102	06/94	Auto	U-108	05/95	Manual
AY-102			C-105	05/96	Manual	T-103	07/95	Manual	U-109	07/94	Auto
AZ-101	08/96	Manual	C-106	02/96	Auto	T-104	12/95	Manual	U-110	01/96	Manual
AZ-102			C-107	04/95	Auto	T-105	07/95	Manual	U-111	01/96	Manual
B-101			C-108			T-106	07/95	Manual	U-112		
B-102	02/95	Manual	C-109			T-107	06/94	Auto	U-201		
B-103			C-110			T-108	10/95	Manual	U-202		
B-104			C-111			T-109	09/94	Manual	U-203		
B-105			C-112	03/96	Manual	T-110	05/95	Auto	U-204		
B-106			C-201			T-111	07/95	Manual			
B-107			C-202			T-112	09/95	Manual			
B-108			C-203			T-201					
B-109			C-204			T-202					
B-110						T-203					
B-111						T-204					
B-112	03/95	Manual									
Total East Area: 41						Total West Area: 65					

106 ENRAFs installed: 53 automatically entered into TMACS, 53 manually entered into CASS

TABLE A-8. TANK MONITOR AND CONTROL SYSTEM (TMACS)

December 31, 1997

Note: Indicated below are the number of tanks having at least one operating sensor (some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table) for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY-Farm have at least one operating RTD sensor.

Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

EAST AREA Tank Farm	Temperatures Thermocouple Tree (TC)	Resistance Thermal Device (RTD)	ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
A-Farm (6 Tanks)	1					
AN-Farm (7 Tanks)	7			7	3	3
AP-Farm (8 Tanks)						
AW-Farm (6 Tanks)						
AX-Farm (4 Tanks)	1					
AY-Farm (2 Tanks)						
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1					
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3				
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	46	4	15	8	3	3
WEST AREA						
S-Farm (12 Tanks)	12		4	1	3	3
SX-Farm (15 Tanks)	14		1	1	7	7
SY-Farm (3 Tanks) (a)	3		1	1	2	2
T-Farm (16 Tanks)	14	1	3		1	1
TX-Farm (18 Tanks)	13		18			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		5	4	5	5
TOTAL WEST AREA (86 Tanks)	81	4	37	7	18	18
TOTALS (177 Tanks)	128	8	53	15	22	22

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.

(b) Each tank has low and high range sensors (9x2=18 sensors)

(c) Each tank has low and high range sensors (17x2=34 sensors)

APPENDIX B

DOUBLE SHELL TANK WASTE TYPE AND SPACE ALLOCATION

TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
DECEMBER 1997

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE	
Complexed Waste (102-AN, 106-AN, 107-AN, 101-SY, 103-SY, (101-AY , 108-AP (DC))	**3.96 Mgal**
Concentrated Phosphate Waste (102-AP)	**1.09 Mgal**
Double-Shell Slurry and Slurry Feed (103-AN, 104-AN, 105-AN, 101-AP, 101-AW, 106-AW)	**4.34 Mgal**
Aging Waste (NCAW) at 5M Na	**1.23 Mgal**
Dilute in Aging Tanks (101-AZ, 102-AZ)	**0.38 Mgal**
Dilute Waste (1) (101-AN, 103-AP, 105-AP, 106-AP, 107-AP, 102-AW, 103-AW, 104-AW, 105-AW, 102-AY, 102-SY, 104-AP)	**3.11 Mgal**
NCRW, PFP and DST Settled Solids (All DST's)	**4.19 Mgal**
Total Inventory=	**18.3 Mgal**

SPACE DESIGNATED FOR SPECIFIC USE	
Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	**2.28 Mgal**
Watch List Tank Space (103-AN, 104-AN, 105-AN, 101-SY, 103-SY, 101-AW)	**0.71 Mgal**
Segregated Tank Space (102-AN, 106-AN, 107-AN, 102-AP, 108-AP, 101-AY 101-AZ, 102-AZ)	**3.23 Mgal**
Receiver/Operational Tank Space (2) (101-AN, 106-AP, 102-SY, 102-AW, 106-AW)	**3.34 Mgal**
Total Specific Use Space (12/31/97)	**9.56 Mgal**

TOTAL DOUBLE-SHELL TANK SPACE	
24 Tanks at 1140 Kgal	**27.36 Mgal**
4 Tanks at 980 Kgal	**3.92 Mgal**
	31.28 Mgal
Total Available Space	**31.28 Mgal**
Double-Shell Tank Inventory	**18.3 Mgal**
Space Designated for Specific Use	**9.56 Mgal**
Remaining Unallocated Space	**3.42 Mgal**

(1) Was reduced in volume by -0.00 Mgal this month (Evaporator WVR)
(2) Tank Space Reduced by Facility Generations and Saltwell Liquid pumping
(3) 241-101-AY: A minumum liquid level is set to provide extra protection against any bottom uplifting of the tank's steel liner. Because of space availablility, waste is stored in 102-AY, the aging waste spare tank. In case of a leak the contents of 102-AY will be distributed to any other DST(s) having available space.

Note: Net change in total DST inventory since last month: -0.027 Mgal

WVPTOT

Table B-2. Double Shell Tank Waste Inventory for December 31, 1997

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
101AW=	1125	306	DSSF	15
102AW=	85	40	DC	1055
103AW=	513	363	NCRW	627
104AW=	1118	267	DN	22
105AW=	436	286	NCRW	704
106AW=	579	228	DSSF	561
101AY=	142	108	DC	838
102AY=	835	22	DN	145
101AZ=	892	47	NCAW	88
102AZ=	867	104	NCAW	113
101AN=	123	33	DN	1017
102AN=	1070	89	CC	70
103AN=	959	410	DSS	181
104AN=	1054	449	DSSF	86
105AN=	1129	489	DSSF	11
106AN=	42	17	CC	1098
107AN=	1051	247	CC	89
101SY=	1127	41	CC	13
102SY=	733	123	DN/PT	407
103SY=	739	362	CC	401
101AP=	1115	0	DSSF	25
102AP=	1094	0	CP	46
103AP=	28	1	DN	1112
104AP=	25	0	DN	1115
105AP=	768	154	DSSF	372
106AP=	366	0	DN	774
107AP=	27	0	DN	1113
108AP=	255	0	DC	885
TOTAL=	18297		TOTAL=	12983

NOTE: Solids Adjusted to Most Current Available Data
NOTE: All Volumes in Kilo-Gallons (Kgals)

TOTAL DST SPACE AVAILABLE	
NON-AGING =	27360
AGING =	3920
TOTAL=	31280

DST INVENTORY CHANGE	
11/97 TOTAL	18324
12/97 TOTAL	18297
DECREASE	-27

WATCH LIST SPACE	
101AW=	15
101SY=	13
103SY=	401
103AN=	181
104AN=	86
105AN=	11
TOTAL=	707

SEGREGATED SPACE (DC,CC,CP,AW)	
102AP=	46
108AP=	885
101AY=	838
102AN=	70
106AN=	1098
107AN=	89
101AZ=	88
102AZ=	113
TOTAL=	3227

WASTE RECEIVER SPACE	
101AN (200E/DC)=	1017
102SY (200W/DN)=	407
106AP (200E/DN)=	774
TOTAL=	2198

USABLE SPACE	
101AP=	25
103AP=	1112
104AP=	1115
105AP=	372
107AP=	1113
102AW=	1055
103AW=	627
104AW=	22
105AW=	704
106AW=	561
102AY=	145
TOTAL=	6851
EVAP. OPERATIONS	-1140
SPARE SPACE	-2280
USABLE LEFT=	3431

USABLE SPACE CHANGE	
11/97 TOTAL SPACE	3427
12/97 TOTAL SPACE	3431
CHANGE=	4

WASTE RECEIVER SPACE CHANGE	
11/97 TOTAL SPACE	2198
12/97 TOTAL SPACE	2198
CHANGE=	0

Inventory Calculation by Waste Type:

COMPLEXED WASTE		
102AN=	981	(CC)
106AN=	25	(CC)
107AN=	804	(CC)
101SY=	1086	(CC)
103SY=	377	(CC)
101AY=	34	(DC)
102AW=	45	(DC)
108AP=	255	(DC)
TOTAL DC/CC=	3607	
TOTAL SOLIDS=	864	

NCRW SOLIDS (PD)	
103AW=	363
105AW=	286
TOTAL=	649

PFP SOLIDS (PT)	
102SY=	123
TOTAL=	123

CONCENTRATED PHOSPHATE (CP)	
102AP=	1094
TOTAL=	1094

DILUTE WASTE (DN)	
103AP=	27
104AP=	25
106AP=	366
107AP=	27
101AN=	90
103AW=	150
104AW=	851
105AW=	150
102AY=	813
102SY=	610
TOTAL DN=	3109
TOTAL SOLIDS=	363

NCAW (AGING WASTE) (@ 5M Na)	
101AZ=	791
102AZ=	434
TOTAL @ ~5M Na=	1225
TOTAL DN=	383
TOTAL SOLIDS=	151

DSS/DSSF	
101AP=	1115
105AP=	614
103AN=	549
104AN=	605
105AN=	640
101AW=	819
106AW=	351
TOTAL DSS/DSSF=	4693
TOTAL SOLIDS=	2036

GRAND TOTALS	
NCRW SOLIDS=	649
DST SOLIDS=	3263
PFP SOLIDS=	123
AGING SOLIDS=	151
CC=	3624
DC=	334
CP=	1094
NCAW=	1608
DSS/DSSF=	4342
DILUTE=	3109
TOTAL=	18297

INV1297

NOTE: Tank 106-AW (evaporator receiver) has Concentrated Complexed (CC) waste in it and will transferred to Tank 106-AN. The CC volume in the "GRAND TOTALS" box reflect actual totals.

Table B-2. Double Shell Tank Waste Inventory for December 31, 1997

TOTAL AVAILABLE SPACE AS OF DECEMBER 31, 1997:			**12983 KGALS**
WATCH LIST TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
Unusable DST Headspace - Due to Special Restrictions	101-AW	DSSF	15 KGALS
Placed on the Tanks, as Stated in the "Wyden Bill"	101-SY	CC	13 KGALS
	103-SY	CC	401 KGALS
	103-AN	DSS	181 KGALS
	104-AN	DSSF	86 KGALS
	105-AN	DSSF	11 KGALS
		TOTAL=	**707 KGALS**
		AVAILABLE TANK SPACE=	12983 KGALS
		MINUS WATCH LIST SPACE=	-707 KGALS
TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS			**12276 KGALS**
SEGREGATED TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available to Store Only Specific Waste Types	102-AP	CP	46 KGALS
	108-AP	DC	885 KGALS
	101-AY	DC	838 KGALS
	102-AN	CC	70 KGALS
	106-AN	CC	1098 KGALS
	107-AN	CC	89 KGALS
	101-AZ	AW	88 KGALS
	102-AZ	AW	113 KGALS
		TOTAL=	**3227 KGALS**
AVAILABLE SPACE AFTER WATCH LIST DEDUCTIONS			12276 KGALS
		MINUS SEGREGATED SPACE=	-3227 KGALS
TOTAL AVAILABLE SPACE AFTER SEGREGATED SPACE DEDUCTIONS			**9049 KGALS**
USABLE/WASTE RECEIVER TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available to Store Facility Generated	101-AP	DSSF	25 KGALS
and Evaporator Product Waste	103-AP	DN	1112 KGALS
	104-AP	DN	1115 KGALS
	105-AP	DSSF	372 KGALS
FACILITY WASTE RECEIVER TANK	106-AP	DN	774 KGALS
	107-AP	DN	1113 KGALS
EVAPORATOR FEED TANK	102-AW	DC	1055 KGALS
	103-AW	NCRW	627 KGALS
	104-AW	DN	22 KGALS
	105-AW	NCRW	704 KGALS
EVAPORATOR RECEIVER TANK	106-AW	DSSF	561 KGALS
FACILITY WASTE RECEIVER TANK	101-AN	DN	1017 KGALS
	102-AY	DN	145 KGALS
FACILITY WASTE RECEIVER TANK	102-SY	DN	407 KGALS
	TOTAL AVAILABLE USABLE TANK SPACE=		**9049 KGALS**
EVAPORATOR OPERATIONAL TANK SPACE:			-1140 KGALS
SPARE TANK SPACE: *(DOE Order 5820.2A)*			-2280 KGALS
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=			**5629 KGALS**

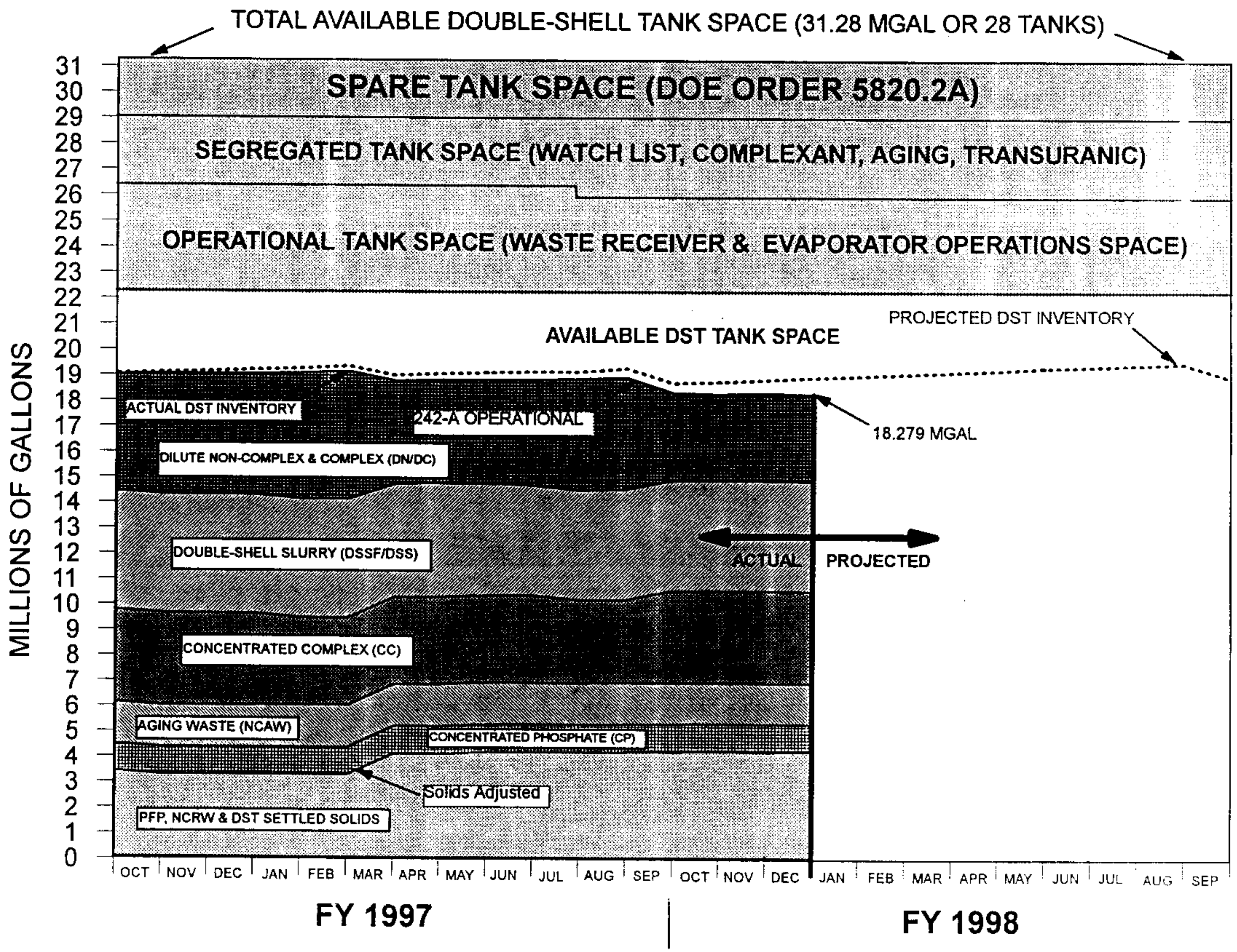

FIGURE B-1. TOTAL DOUBLE-SHELL TANK INVENTORY

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APPENDIX C

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

December 31, 1997

1. TANK STATUS CODES

WASTE TYPE (also see definitions, section 3)

AGING	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
SRCVR	Slurry Receiver Tank

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
E	ENRAF Surface Level Gauge (being installed to replace FICs)
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

3. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AGING)

High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

Concentrated Complexant (CC)

Concentrated product from the evaporation of dilute complexed waste.

Concentrated Phosphate Waste (CP)

Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)

Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)

Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)

Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)

Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)

General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)

PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

PFP TRU Solids (PT)

TRU solids fraction from PFP Plant operations.

Drainable Interstitial Liquid (DIL)

Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

Supernate

The liquid above the solids in waste storage tanks. (See also Section 4)

Ferrocyanide

A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[Fe(CN)_6]^{-4}$.

INTERIM STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusuable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion

A term used to describe the infiltration of liquid into a waste tank.

SURVEILLANCE INSTRUMENTATION

Drywells

Drywells are vertical boreholes with 6-inch (internal diameter) carbon steel casings positioned radially around SSTs. These wells range between 50 and 250 feet in depth, and are monitored between the range of 50 to 150 feet. The wells are sealed when not in use. They are called drywells because they do not penetrate to the water table and are therefore usually "dry." There are 759 drywells.

Monitoring is done by gamma radiation or neutron-moisture sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage.

Two single-shell tanks (C-105 and C-106) are currently monitored monthly by gamma radiation sensors. The remaining drywells are monitored on request by gamma radiation sensors. Monitoring by neutron-moisture sensors is done only on request.

Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Computer Automated Surveillance System (CASS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

CASS	Computer Automated Surveillance System

CCS	Controlled, Clean and Stable (tank farms)

II	Interim Isolated

IP Intrusion Prevention Completed

IS Interim Stabilized

MT/FIC/ENRAF Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD Operating Specifications Document

OSR Operational Safety Requirements

PI Partial Interim Isolated

SAR Safety Analysis Reports

SHMS Standard Hydrogen Monitoring System

TMACS Tank Monitor and Control System

TPA Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

USQ Unreviewed Safety Question

Wyden Amendment "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

4. INVENTORY AND STATUS BY TANK - VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE E-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake (see definitions below)
Supernate Liquid	Drainable Liquid Remaining minus Drainable Interstitial. Supernate is the clear liquid floating on the surface of the waste. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement. In some cases, the supernatant volume includes floating solid crusts because their volume cannot be measured. In-tank photographs or videos are useful in estimating the liquid volumes; the area of solids covered and the average depth can be estimated.
Drainable Interstitial Liquid	Drainable Liquid Remaining minus Supernate. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using average porosity values or actual data for each tank, when available. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes in the tank. The sum of the interstitial liquid contained in saltcake and sludge is the initial volume of drainable interstitial liquid. The volume reported as Drainable Interstitial Liquid is the initial volume of drainable interstitial liquid minus interstitial liquid removed by pumping.

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume. The total pumped volume is subtracted from drainable liquid remaining and pumpable liquid remaining. Pump production takes into account the amount of water added to the tank during the month (if any).
Total Pumped	Cumulative net total gallons of liquid pump from 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial. (See Supernatant Liquid and Drainable Interstitial Liquid above for definitions). The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate minus total gallons pumped.
Pumpable Liquid Remaining	Drainable Liquid Remaining minus undrainable heel volume. (Dish bottom tanks have a "heel" where liquids can collect: flat bottom tanks do not). (See Drainable Liquid Remaining and Pumped this Month for definitions). Not all drainable interstitial liquid is pumpable. It is assumed that drainable interstitial liquid on top of the undrainable heel in sludge or saltcake, is not jet pumpable. Therefore, pumpable interstitial liquid is the initial volume of drainable interstitial liquid minus the amount of interstitial liquid on top of the heel. The volume shown as Pumpable Liquid Remaining is the sum of pumpable interstitial liquid and supernate minus total gallons pumped.
Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last In-tank Photo	Date of last in-tank photographs taken.
Last In-tank Video	Date of last in-tank video taken.
See Footnotes for These Changes	Indicates any change made the previous month. A footnote explanation for the change follows the Inventory and Status by Tank section (Table E-6).

APPENDIX D

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

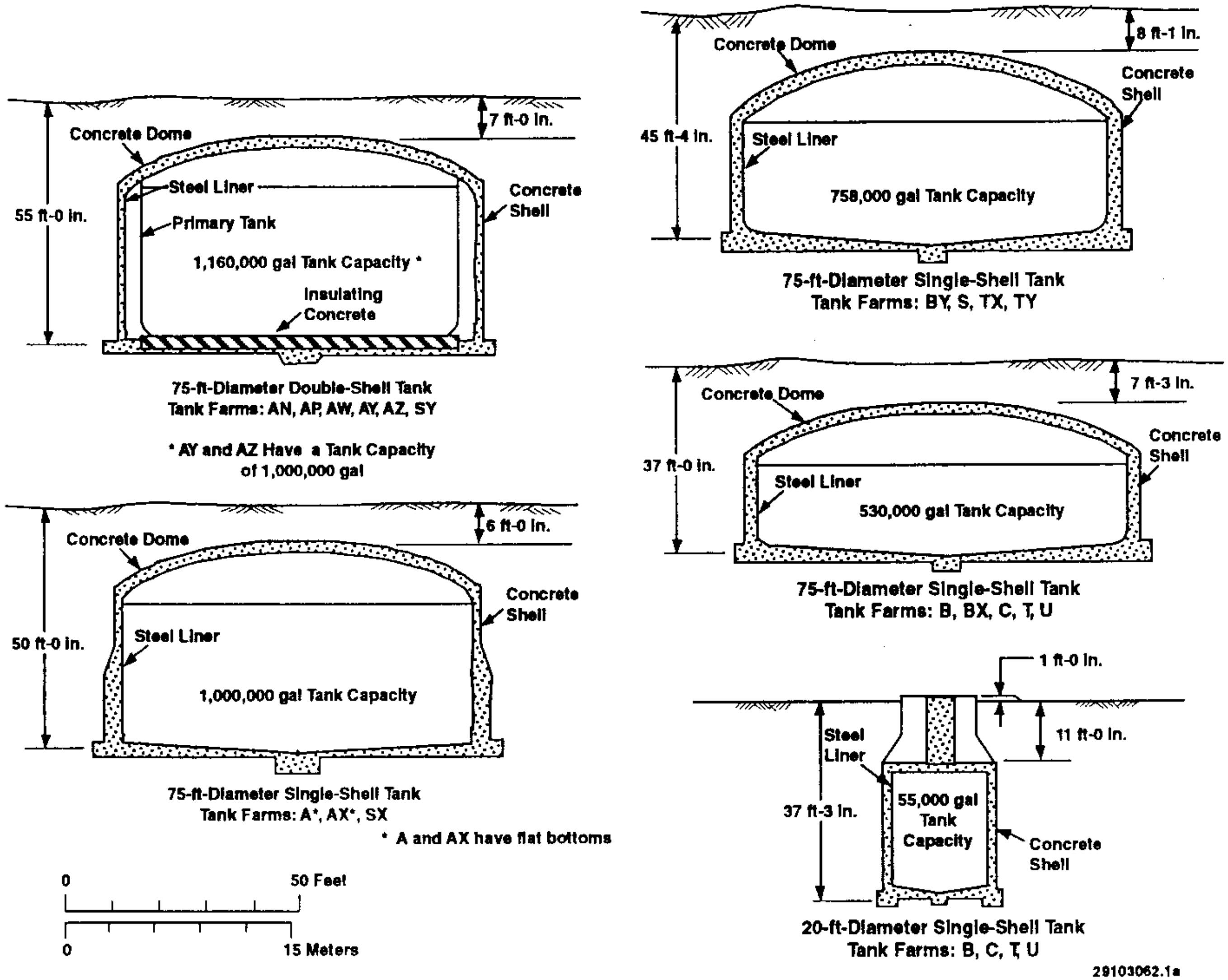


FIGURE D-1. HIGH-LEVEL WASTE TANK CONFIGURATION

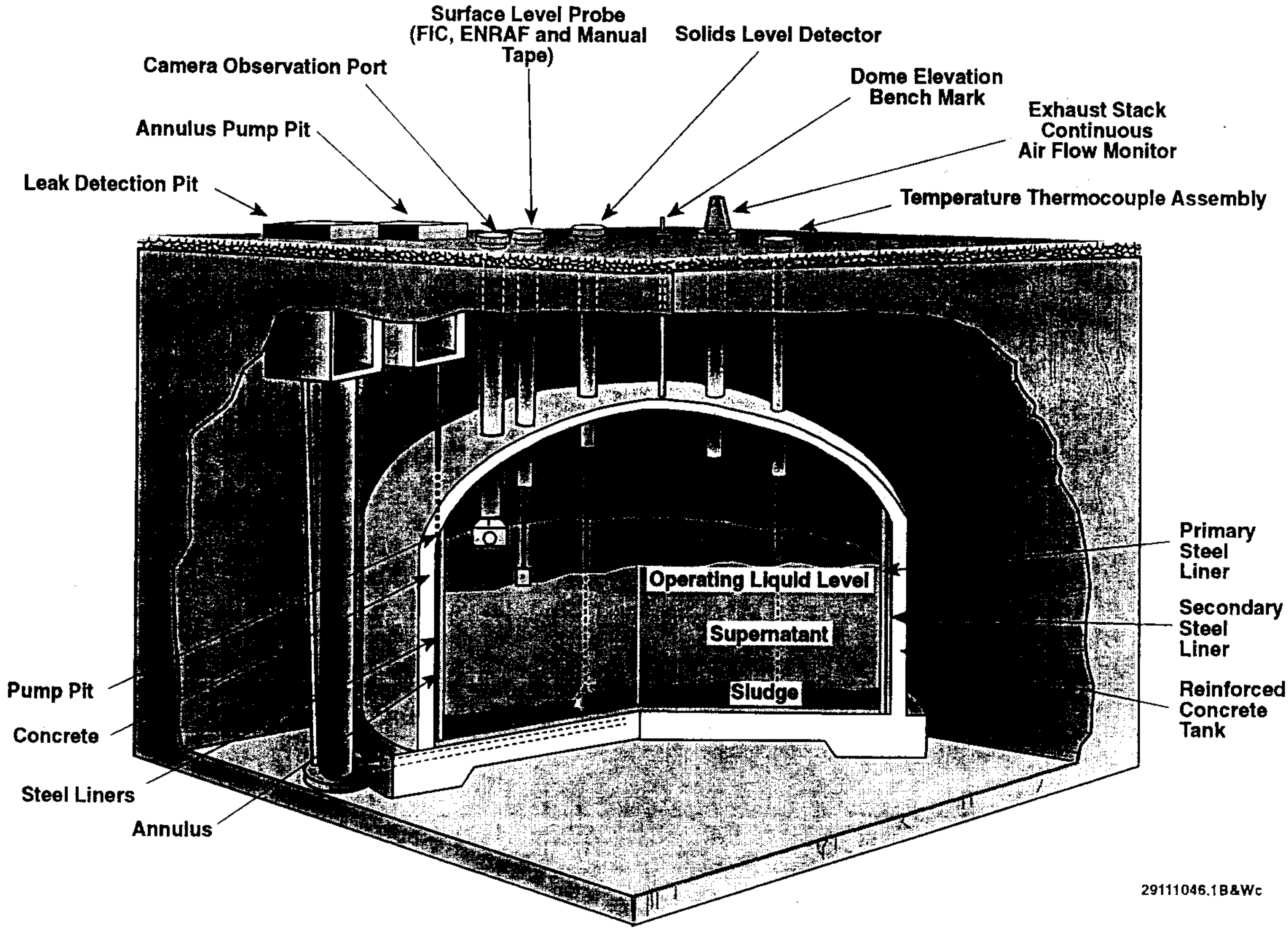


FIGURE D-2. DOUBLE-SHELL TANK INSTRUMENTATION CONFIGURATION

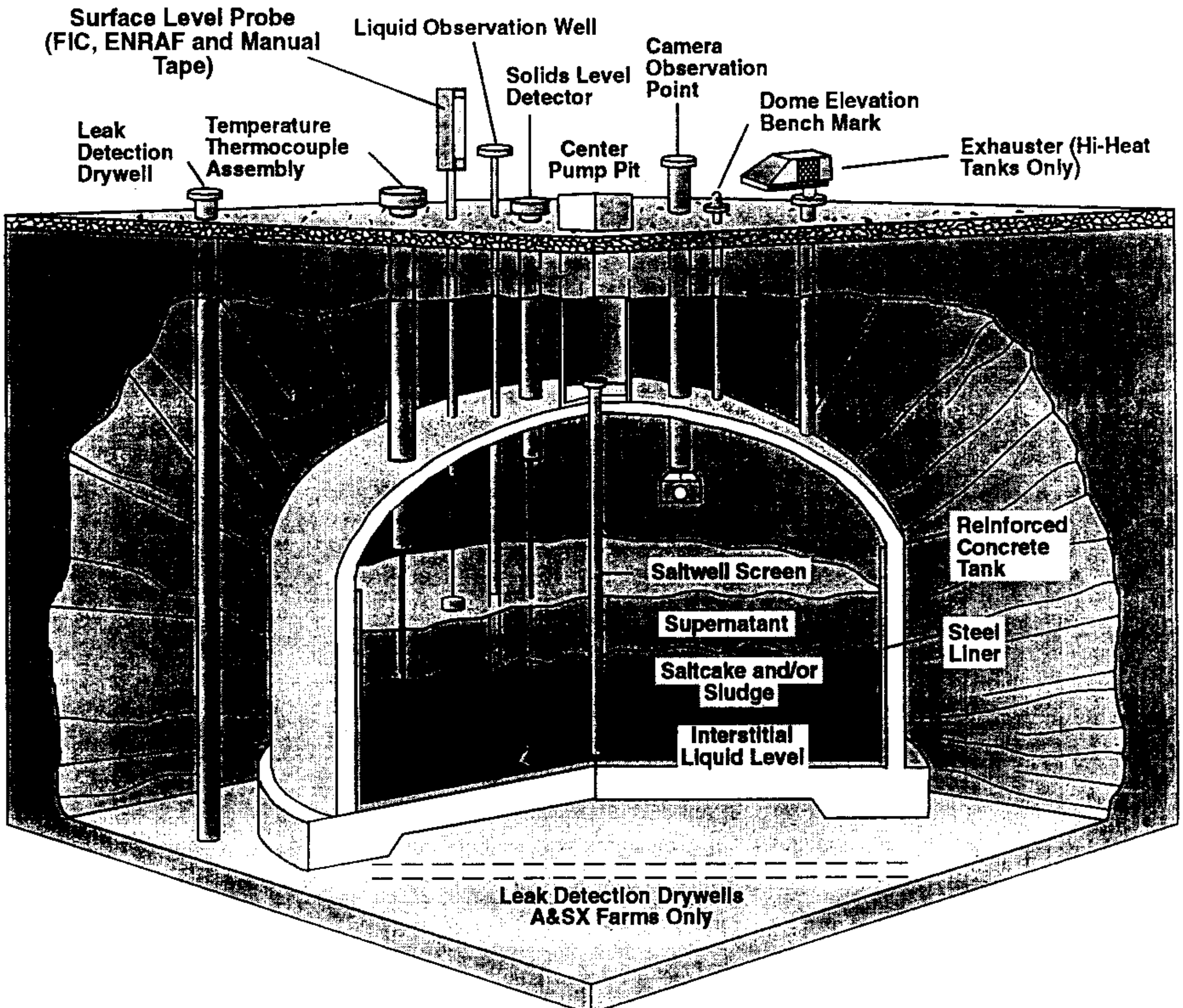


FIGURE D-3. SINGLE-SHELL TANK INSTRUMENTATION CONFIGURATION

Hanford Tank Farm Facilities

200 East

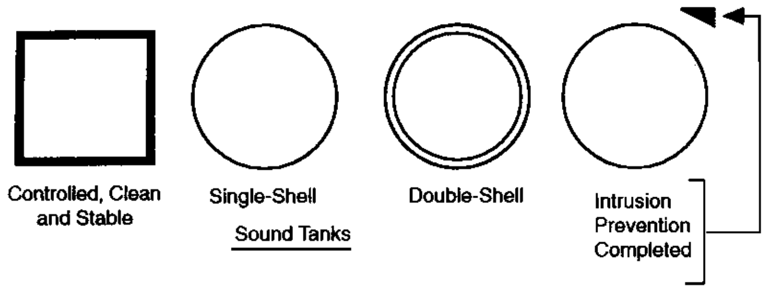
Note: All single-shell tanks were removed from service (not allowed to receive waste) on or before November 21, 1980

Active Lines Only

Concrete encased or pipe-in-pipe

Direct Buried Pipe

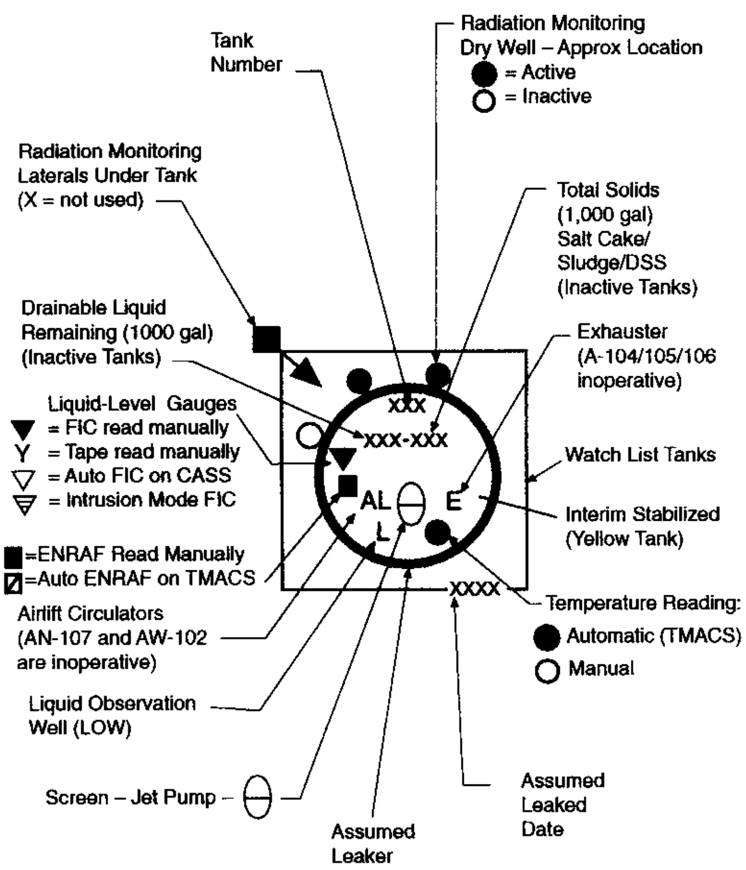
Cross-Site Transfer Lines (concrete encased or pipe-in-pipe)

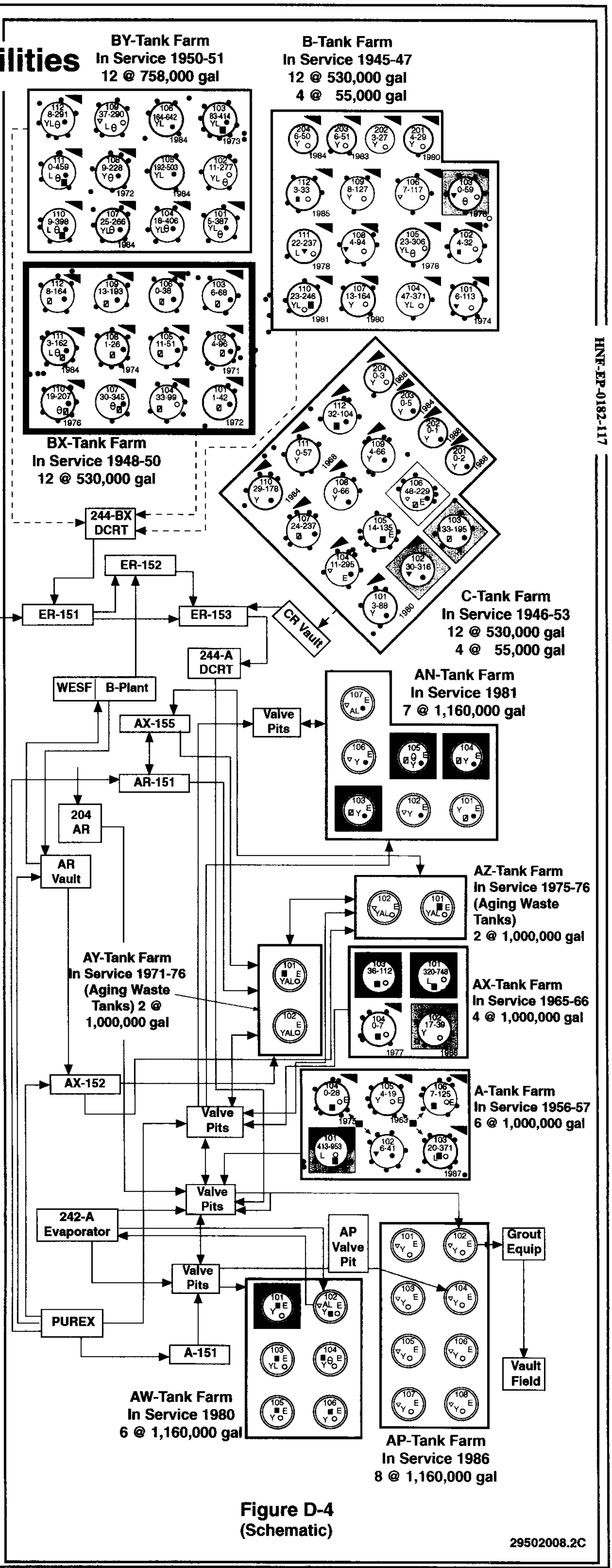


All tanks 75 ft. dia. except 200 series tanks which are 20 ft. dia. @ 55,000 gal

DST = Double-Shell Tank
SST = Single-Shell Tank
DCRT = Double Contained Receiver Tank
CASS = Computer Automated Surveillance System
FIC/ENRAF = Liquid Level Monitoring Devices
TMACS = Tank Monitor and Control System

High Heat Load Tanks = East Area - A-104/105, C-106





Watch List Tanks

H2/Flammable gases

Organics

106-C (cooling water added)

Status as of December 31, 1997
Updated Quarterly
Issued by Tank Waste Remediation System

Figure D-4
(Schematic)

29502008.2C

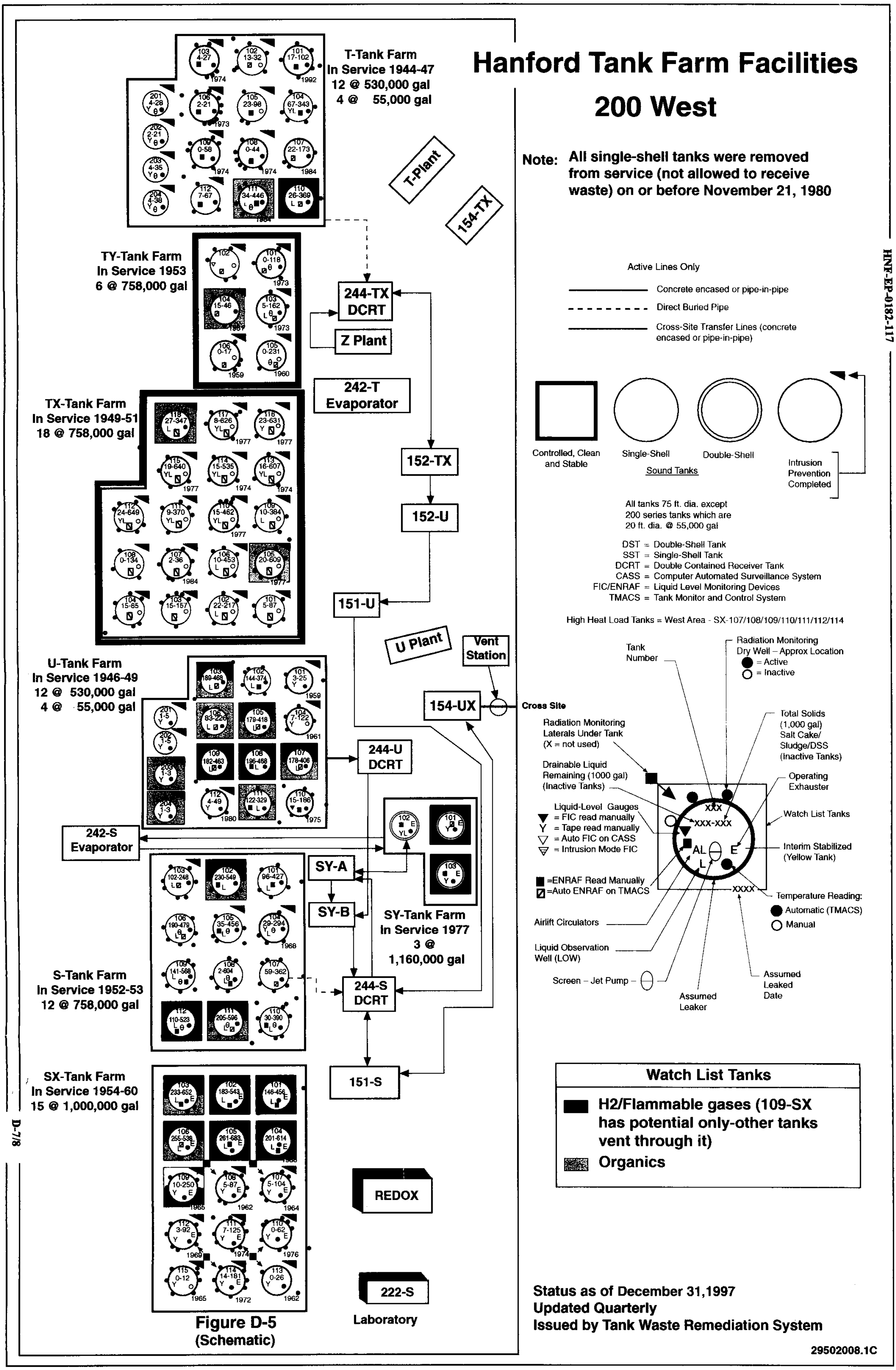


Figure D-5
(Schematic)

APPENDIX E

MONTHLY SUMMARY
TANK USE SUMMARY
PUMPING RECORD, LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANK FARMS
INVENTORY SUMMARY BY TANK FARM
INVENTORY AND STATUS BY TANK

TABLE E-1. MONTHLY SUMMARY
TANK STATUS
December 31, 1997

	200 EAST AREA	200 WEST AREA	TOTAL	
IN SERVICE	25	03	28	(1)
OUT OF SERVICE	66	83	149	
SOUND	59	51	110	
ASSUMED LEAKER	32	35	67	
INTERIM STABILIZED	60	59	119	(2)
ISOLATED				
PARTIAL INTERIM	11	30	41	
INTRUSION PREVENTION COMPLETE	55	53	108	
CONTROLLED, CLEAN, AND STABLE	12	24	36	

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AGING	Aging waste	1608	0	1608	0	1608	1608
CC	Complexant concentrate waste	1813	1459	3272	3	3269	3272
CP	Concentrated phosphate waste	1094	0	1094	0	1094	1094
DC	Dilute complexed waste	335	1	336	2	334	336
DN	Dilute non-complexed waste	2176	0	2176	0	2176	2176
DN/PD	Dilute non-complex/PUREX TRU solid	306	0	306	0	306	306
DN/PT	Dilute non-complex/PFP TRU solids	0	662	662	0	662	662
NCPLX	Non-complexed waste	207	289	496	496	0	496
DSSF	Double-shell slurry feed	4702	48	4750	57	4693	4750
TOTAL SUPERNATANT		12241	2459	14700	558	14142	14700
SOLIDS							
	Double-shell slurry	410	0	410	0	410	410
	Sludge	9276	6219	15495	11865	3630	15495
	Saltcake	6301	16740	23041	22926	115	23041
TOTAL SOLIDS		15987	22959	38946	34791	4155	38946
TOTAL WASTE		28228	25418	53646	35349	18297	53646
AVAILABLE SPACE IN TANKS		12162	821	12983	0	12983	12983
DRAINABLE INTERSTITIAL		2261	4651	6912	6601	311	6912
DRAINABLE LIQUID REMAINING		14503	7097	21600	7147	14453	21600

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103.

(2) Includes one tank (B-202) which does not meet current established supernatant and interstitial liquid stabilization criteria.

TABLE E-2. TANK USE SUMMARY

December 31, 1997

				ISOLATED TANKS			
TANK FARMS	TANKS RECEIVING WASTE TRANSERS	SOUND	ASSUMED LEAKER	PARTIAL INTERIM	INTRUSION PREVENTION COMPLETED	CONTROLLED CLEAN, AND STABLE	INTERIM TABILIZED TANKS
EAST							
A	0	3	3	2	4	0	5
AN	7 (1)	7	0	0	0		0
AP	8	8	0	0	0		0
AW	6 (1)	6	0	0	0		0
AX	0	2	2	1	3		3
AY	2	2	0	0	0		0
AZ	2	2	0	0	0		0
B	0	6	10	0	16		16 (2)
BX	0	7	5	0	12	12	12
BY	0	7	5	5	7		10
C	0	9	7	3	13		14
Total	25	59	32	11	55	12	60
WEST							
S	0	11	1	10	2		4
SX	0	5	10	6	9		9
SY	3 (1)	3	0	0	0		0
T	0	9	7	5	11		14
TX	0	10	8	0	18	18	18
TY	0	1	5	0	6	6	6
U	0	12	4	9	7		8
Total	3	51	35	30	53	24	59
TOTAL	28	110	67	41	108	36	119

(1) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103).

(2) Includes tank B-202 which no longer meets established supernatant interstitial liquid stabilization criteria.

TABLE E-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANK FARMS

December 31, 1997

Waste Volumes (Kgallons)

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL REMAINING	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST							
A	0.0	0.0	150.5	9	492	501	441
AN	N/A	N/A	N/A	3694	127	3821	N/A
AP	N/A	N/A	N/A	3523	11	3534	N/A
AW	N/A	N/A	N/A	2349	163	2512	N/A
AX	0.0	0.0	13.0	3	409	412	344
AY	N/A	N/A	N/A	847	5	852	N/A
AZ	N/A	N/A	N/A	1608	5	1613	N/A
B	0.0	0.0	0.00	15	164	179	80
BX	N/A	0.0	200.2	21	107	129	N/A
BY	0.0	0.0	1567.8	0	588	588	431
C	0.0	0.0	103.0	172	190	362	272
Total	0.0	0.0	2034.5	12241	2261	14503	1568
WEST							
S	0.0	0.0	853.6	71	1303	1361	1138
SX	0.0	0.0	113.2	63	1507	1570	1445
SY	N/A	N/A	N/A	2121	0	2121	N/A
T	1.9	0.0	183.4	28	203	231	167
TX	N/A	0.0	1205.7	5	250	255	N/A
TY	N/A	0.0	29.9	3	31	34	N/A
U	0.0	0.0	0.0	168	1357	1525	1377
Total	1.9	0.0	2385.8	2459	4651	7097	4127
TOTAL	1.9	0.0	4420.3	14700	6912 (1)	21600	5695 (1)

(1) Volume based on 21% (sludge waste) and 50% (saltcake waste) liquid in solid (porosity) value, per WHC-SD-W236A-ES-012, Rev .1, dated May 21, 1996, a re-evaluation of the non-stabilized tanks.

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, TY).

TABLE E-4. INVENTORY SUMMARY BY TANK FARM

December 31, 1997

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES (Kgallons) AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	SOLIDS VOLUME DSS	SLUDGE	SALT CAKE	TOTAL
EAST																
A	1537	0	0	0	0	0	0	0	0	9	0	9	0	556	972	1528
AN	5428	2552	0	1810	0	0	90	0	0	1794	0	3694	410	1324	0	1734
AP	3678	5442	0	0	1094	255	445	0	0	1729	0	3523	0	155	0	155
AW	3856	2984	0	0	0	45	828	306	0	1170	0	2349	0	1396	111	1507
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	977	983	0	0	0	34	813	0	0	0	0	847	0	130	0	130
AZ	1759	201	1608	0	0	0	0	0	0	0	0	1608	0	151	0	151
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1493	0	0	0	0	0	0	0	0	0	21	21	0	1351	121	1472
BY	4561	0	0	0	0	0	0	0	0	0	0	0	0	693	3868	4561
C	1976	0	0	0	0	1	0	0	0	0	171	172	0	1804	0	1804
Total	28228	12162	1608	1813	1094	335	2176	306	0	4702	207	12241	410	9276	6301	15987
WEST																
S	5300	0	0	0	0	0	0	0	0	17	54	71	0	1166	4063	5229
SX	4419	0	0	0	0	1	0	0	0	0	62	63	0	1254	3102	4356
SY	2599	821	0	1459	0	0	0	0	662	0	0	2121	0	474	4	478
T	1903	0	0	0	0	0	0	0	0	0	28	28	0	1875	0	1875
TX	7009	0	0	0	0	0	0	0	0	0	5	5	0	241	6763	7004
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25418	821	0	1459	0	1	0	0	662	48	289	2459	0	6219	16740	22959
TOTAL	53646	12983	1608	3272	1094	336	2176	306	662	4750	496	14700	410	15495	23041	38946

TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

December 31, 1997

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
									AN TANK FARM STATUS										
AN-101	DN	SOUND	DRCVR	44.7	123	1017	90	0	90	90	0	33	0	FM	S	04/30/96	0/ 0/ 0		
AN-102	CC	SOUND	CWHT	389.1	1070	70	981	3	984	981	0	89	0	FM	S	08/22/89	0/ 0/ 0		
AN-103	DSS	SOUND	CWHT	348.7	959	181	549	0	549	549	410	0	0	FM	S	03/31/97	10/29/87		
AN-104	DSSF	SOUND	CWHT	383.3	1054	86	605	48	653	631	0	449	0	FM	S	03/31/97	08/19/88		
AN-105	DSSF	SOUND	CWHT	410.5	1129	11	640	53	693	671	0	489	0	FM	S	03/31/97	01/26/88		
AN-106	CC	SOUND	CWHT	15.3	42	1098	25	0	25	25	0	17	0	FM	S	08/22/89	0/ 0/ 0		
AN-107	CC	SOUND	CWHT	382.2	1051	89	804	23	827	805	0	247	0	FM	S	08/22/89	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS	5428	2552	3694	127	3821	3752	410	1324	0						
									AP TANK FARM STATUS										
AP-101	DSSF	SOUND	DRCVR	405.5	1115	25	1115	0	1115	1115	0	0	0	FM	S	05/01/89	0/ 0/ 0		
AP-102	CP	SOUND	GRTFD	397.8	1094	46	1094	0	1094	1094	0	0	0	FM	S	07/11/89	0/ 0/ 0		
AP-103	DN	SOUND	DRCVR	10.2	28	1112	27	0	27	27	0	1	0	FM	S	05/31/96	0/ 0/ 0		
AP-104	DN	SOUND	GRTFD	9.1	25	1115	25	0	25	25	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-105	DSSF	SOUND	CWHT	279.3	768	372	614	11	625	614	0	154	0	FM	S	04/30/96	0/ 0/ 0	09/27/95	
AP-106	DN	SOUND	DRCVR	133.1	366	774	366	0	366	366	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-107	DN	SOUND	DRCVR	9.8	27	1113	27	0	27	27	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-108	DC	SOUND	DRCVR	92.7	255	885	255	0	255	255	0	0	0	FM	S	10/13/88	0/ 0/ 0		
8 DOUBLE-SHELL TANKS				TOTALS	3678	5442	3523	11	3534	3523	0	155	0						
									AW TANK FARM STATUS										
AW-101	DSSF	SOUND	CWHT	409.1	1125	15	819	30	849	827	0	306	0	FM	S	03/31/97	03/17/88		
AW-102	DC	SOUND	EVFD	30.9	85	1055	45	0	45	45	0	40	0	FM	S	08/31/97	02/02/83		(a)
AW-103	DN/PD	SOUND	DRCVR	186.5	513	627	150	37	187	165	0	363	0	FM	S	02/01/89	0/ 0/ 0		
AW-104	DN	SOUND	DRCVR	406.5	1118	22	828	49	877	855	0	179	111	FM	S	03/05/87	02/02/83		
AW-105	DN/PD	SOUND	DRCVR	158.5	436	704	156	27	183	161	0	280	0	FM	S	05/31/96	0/ 0/ 0		
AW-106	DSSF	SOUND	SRCVR	210.5	579	561	351	20	371	351	0	228	0	FM	S	08/31/97	02/02/83		(a)
6 DOUBLE-SHELL TANKS				TOTALS	3856	2984	2349	163	2512	2404	0	1396	111						

TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

December 31, 1997

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
									AY TANK FARM STATUS										
AY-101	DC	SOUND	DRCVR	51.6	142	838	34	5	39	34	0	108	0	FM	S	10/31/97	12/28/82		(a)
AY-102	DN	SOUND	DRCVR	303.6	835	145	813	0	813	813	0	22	0	FM	S	10/31/97	04/28/81		(a)
2 DOUBLE-SHELL TANKS				TOTALS	977	983	847	5	852	847	0	130	0						
									AZ TANK FARM STATUS										
AZ-101	AGING	SOUND	CWHT	324.4	892	88	845	0	845	845	0	47	0	FM	S	10/31/97	08/18/83		(a)
AZ-102	AGING	SOUND	DRCVR	315.3	867	113	763	5	768	763	0	104	0	FM	S	10/31/97	10/24/84		(a)
2 DOUBLE-SHELL TANKS				TOTALS	1759	201	1608	5	1613	1608	0	151	0						
									SY TANK FARM STATUS										
SY-101	CC	SOUND	CWHT	409.8	1127	13	1086	0	1086	1086	0	41	0	FM	S	05/31/96	04/12/89		
SY-102	DN/PT	SOUND	DRCVR	266.5	733	407	662	0	662	662	0	71	0	FM	S	05/12/87	04/29/81		
SY-103	CC	SOUND	CWHT	268.7	739	401	373	0	373	373	0	362	4	FM	S	06/30/96	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2599	821	2121	0	2121	2121	0	474	4						
GRAND TOTAL					18297	12983	14142	311	14453	14255	410	3630	115						

Note: +/- 1 Kgal differences are the result of computer rounding

Tank Farms	Available Space Calculations Used in This Document (Most Conservative)	IOSR WHC-SD-WM-OSR-16 (AN, AP, AW, SY) WHC-T-151-00009 (Aging Waste)	
AN, AP, AW, SY	1,140,000 gal (414.5 in.)	1,144,000 gal (416 in.)(AN, AP, SY)	1,127,500 (410 in.)(AW-Farm)
AY, AZ (Aging Waste)	980,000 gal (356.4 in.)	1,000,000 gal (363.6 in.)(AY, AZ)	

Notes: Efforts are being made to confirm the accuracy of the sludge and saltcake volumes in the DSTs; some of these tanks may contain more saltcake and less sludge than is currently shown in this report. Additionally, three tanks (AW-104, AW-105, and SY-102) show solids levels which do not agree with Table B-2 (Table B-2 does not differentiate between sludge and saltcake). Determining the accuracy of the sludge/saltcake volumes will also resolve this discrepancy.

(a) Solids in tanks AY-101, AY-102, AZ-101 and AZ-102 were updated October 1997, per TO-040-560, Tank Farm Level Sludge Readings.

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
A TANK FARM STATUS																		
A-101	DSSF	SOUND	/PI	953	0	464	0.0	0.0	464	441	3	950	P	F	11/21/80	08/21/85		
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	07/20/89		
A-103	DSSF	ASMD LKR	IS/IP	371	5	15	0.0	111.0	20	0	366	0	-	FP	06/03/88	12/28/88		
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78	06/25/86		
A-105	NCPLX	ASMD LKR	IS/IP	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	08/20/86		
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82	08/19/86		
6 SINGLE-SHELL TANKS			TOTALS	1537	9	492	0.0	150.5	501	441	556	972						
AX TANK FARM STATUS																		
AX-101	DSSF	SOUND	/PI	748	0	359	0.0	0.0	359	338	3	745	P	F	07/16/97	08/18/87		
AX-102	CC	ASMD LKR	IS/IP	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88	06/05/89		
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87	08/13/87		
AX-104	NCPLX	ASMD LKR	IS/IP	7	0	0	0.0	0.0	0	0	7	0	P	M	04/28/82	08/18/87		
4 SINGLE-SHELL TANKS			TOTALS:	906	3	409	0.0	13.0	412	344	19	884						
B TANK FARM STATUS																		
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	113	0	P	F	04/28/82	05/19/83		
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	18	10	P	F	08/22/85	08/22/85		
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	59	0	F	F	02/28/85	10/13/88		
B-104	NCPLX	SOUND	IS/IP	371	1	46	0.0	0.0	47	40	301	69	M	M	06/30/85	10/13/88		
B-105	NCPLX	ASMD LKR	IS/IP	306	0	23	0.0	0.0	23	0	40	266	P	MP	12/27/84	05/19/88		
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	02/28/85		
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	164	0	M	M	03/31/85	02/28/85		
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	94	0	F	F	05/31/85	05/10/85		
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	127	0	M	M	04/08/85	04/02/85		
B-110	NCPLX	ASMD LKR	IS/IP	246	1	22	0.0	0.0	23	17	245	0	MP	MP	02/28/85	03/17/88		
B-111	NCPLX	ASMD LKR	IS/IP	237	1	21	0.0	0.0	22	16	236	0	F	F	06/28/85	06/26/85		
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	05/29/85		
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82	11/12/86	06/23/95	
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	05/29/85	06/15/95	
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	11/13/86		
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	10/22/87		
16 SINGLE-SHELL TANKS			TOTALS	2057	15	164	0.0	0.0	179	80	1697	345						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								BX TANK FARM STATUS										
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	68	6	0	0.0	0.0	6	0	62	0	P	F	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	0	0.0	14.0	0	0	38	0	MP	PS	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	16	0.0	1.5	19	13	195	9	MP	M	10/31/94	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	1	0.0	116.9	3	1	52	109	M	M	04/06/95	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS			TOTALS:	1493	21	107	0.0	200.2	129	78	1351	121						
								BY TANK FARM STATUS										
BY-101	NCPLX	SOUND	IS/IP	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	11	0.0	159.0	11	0	0	277	MP	M	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	414	0	38	0.0	95.9	38	32	5	409	MP	M	11/25/97	09/07/89	02/24/97	(c)
BY-104	NCPLX	SOUND	IS/IP	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	228	0.0	0.0	228	216	44	459	P	MP	07/16/97	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	642	0	200	0.0	63.7	200	163	95	547	P	MP	04/28/82	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	37	0.0	157.1	37	20	57	233	F	PS	07/08/87	06/18/97		
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	5	286	P	M	04/28/82	04/14/88		
12 SINGLE-SHELL TANKS			TOTALS:	4561	0	588	0.0	1567.8	588	431	693	3868						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								C TANK FARM STATUS										
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	30	0.0	46.7	30	17	316	0	F	FP	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	195	133	2	0.0	0.0	135	133	62	0	F	S	10/20/90	07/28/87		
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	07/25/90		
C-105	NCPLX	SOUND	IS/PI	134	2	30	0.0	0.0	32	9	132	0	F	S	10/31/95	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	229	32	30	0.0	0.0	62	52	197	0	F	PS	04/28/82	08/05/94	08/08/94	
C-107	DC	SOUND	IS/IP	237	0	24	0.0	40.8	24	15	237	0	F	S	09/30/95	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	12/05/74	11/17/94	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	28	0.0	15.5	29	15	177	0	F	FMP	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS			TOTALS:	1976	172	190	0.0	103.0	362	272	1804	0						
								S TANK FARM STATUS										
S-101	NCPLX	SOUND	/PI	427	12	126	0.0	0.0	138	127	244	171	F	PS	09/16/80	03/18/88		
S-102	DSSF	SOUND	/PI	549	0	262	0.0	0.0	262	239	4	545	P	FP	04/28/82	03/18/88		
S-103	DSSF	SOUND	/PI	248	17	101	0.0	0.0	118	97	10	221	M	S	11/20/80	06/01/89		
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88	04/12/89		
S-106	NCPLX	SOUND	/PI	479	4	186	0.0	97.0	190	168	28	447	P	FP	12/31/93	03/17/89	09/12/94	
S-107	NCPLX	SOUND	/PI	376	14	85	0.0	0.0	99	88	293	69	F	PS	09/25/80	03/12/87		
S-108	NCPLX	SOUND	IS/PI	450	0	4	0.0	199.8	4	0	4	446	P	MP	12/20/96	03/12/87	12/03/96	
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75	08/24/84		
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	23	131	259	F	PS	05/14/92	03/12/87	12/11/96	
S-111	NCPLX	SOUND	/PI	540	23	195	0.0	3.3	205	134	139	378	P	FP	06/30/97	08/10/89		
S-112	NCPLX	SOUND	/PI	523	0	110	0.0	125.1	110	107	5	518	P	FP	12/31/93	03/24/87		
12 SINGLE-SHELL TANKS			TOTALS:	5300	71	1303	0.0	853.6	1361	1138	1166	4063						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								SX TANK FARM STATUS										
SX-101	DC	SOUND	/PI	456	1	184	0.0	0.0	185	174	112	343	P	FP	04/28/82	03/10/89		
SX-102	DSSF	SOUND	/PI	543	0	226	0.0	0.0	226	216	117	426	P	M	04/28/82	01/07/88		
SX-103	NCPLX	SOUND	/PI	652	1	281	0.0	0.0	282	272	115	536	F	S	07/15/91	12/17/87		
SX-104	DSSF	ASMD LKR	/PI	614	0	201	0.0	113.2	201	195	136	478	F	S	07/07/89	09/08/88		
SX-105	DSSF	SOUND	/PI	683	0	309	0.0	0.0	309	299	73	610	P	F	04/28/82	06/15/88		
SX-106	NCPLX	SOUND	/PI	538	61	224	0.0	0.0	285	264	12	465	F	PS	10/28/80	06/01/89		
SX-107	NCPLX	ASMD LKR	IS/IP	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	5	0.0	0.0	5	0	87	0	P	M	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	244	0	48	0.0	0.0	48	25	0	244	P	M	01/10/96	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS			TOTALS:	4419	63	1507	0.0	113	1570	1445	1254	3102						
								T TANK FARM STATUS										
T-101	NCPLX	ASMD LKR	IS/PI	102	1	16	0.0	25.3	17	0	101	0	F	S	04/14/93	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	07/03/84		
T-104	NCPLX	SOUND	/PI	343	0	67	1.9	120.2	67	64	343	0	P	MP	12/31/97	06/29/89		(a)
T-105	NCPLX	SOUND	IS/IP	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	22	0.0	11.0	22	12	173	0	P	FP	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82	07/17/84		

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
T-109	NCPLX	ASMD LKR	IS/IP	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	02/25/93		
T-110	NCPLX	SOUND	/PI	369	0	26	0.0	17.3	26	23	369	0	P	FP	09/30/97	07/12/84		(b)
T-111	NCPLX	ASMD LKR	IS/PI	446	0	34	0.0	9.6	34	29	446	0	P	FP	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS			TOTALS:	1903	28	201	1.9	183.4	229	165	1875	0						

TX TANK FARM STATUS

TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	22	0.0	94.4	22	0	0	217	M	S	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83	04/11/83	09/23/94	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	347	0	27	0.0	89.1	27	0	0	347	F	S	11/17/80	12/19/79		
18 SINGLE-SHELL TANKS			TOTALS:	7009	5	250	0.0	1205.7	255	0	241	6763						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUM		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
							TY TANK FARM STATUS											
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	0	0.0	8.2	0	0	118	0	P	F	04/28/82	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	17	0	0	0.0	0.0	0	0	17	0	P	M	04/28/82	08/22/89		
6 SINGLE-SHELL TANKS			TOTALS:	638	3	31	0.0	29.9	34	0	571	64						
							U TANK FARM STATUS											
U-101	NCPLX	ASMD LKR	IS/IP	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	374	18	154	0.0	0.0	172	160	43	313	P	MP	04/28/82	06/08/89		
U-103	NCPLX	SOUND	/PI	468	13	207	0.0	0.0	220	205	32	423	P	FP	04/28/82	09/13/88		
U-104	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	122	0	P	MP	04/28/82	08/10/89		
U-105	NCPLX	SOUND	/PI	418	37	170	0.0	0.0	207	192	32	349	FM	PS	09/30/78	07/07/88		
U-106	NCPLX	SOUND	/PI	226	15	87	0.0	0.0	102	85	26	185	F	PS	12/30/93	07/07/88		
U-107	DSSF	SOUND	/PI	406	31	172	0.0	0.0	203	183	15	360	F	S	12/30/93	10/27/88		
U-108	NCPLX	SOUND	/PI	468	24	202	0.0	0.0	226	209	29	415	F	S	12/30/93	09/12/84		
U-109	NCPLX	SOUND	/PI	463	19	197	0.0	0.0	216	205	48	396	F	F	06/30/96	07/07/88		
U-110	NCPLX	ASMD LKR	IS/PI	186	0	15	0.0	0.0	15	9	186	0	M	M	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	146	0.0	0.0	146	129	26	303	PS	FPS	02/10/84	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS			TOTALS:	3550	168	1357	0.0	0.0	1525	1377	638	2744						
GRAND TOTAL				35349	558	6599	1.9	4420.3	7145	5771	11865	22926						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

December 31, 1997

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

The category "Interim Isolated" (II) was changed to "Intrusion Prevention" (IP) in June 1993. See section C. "Tank and Equipment Code and Status Definitions."

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

(a) T-104 - Following information from Cognizant Engineer:

Pumping started March 24, 1996; the pump failed August 26, and resumed after pump was replaced. Pumping temporarily suspended October 18 for Flammable Gas issues, and resumed pumping on April 17, 1997, shut down September 26, resumed December 21.

Total Waste: 343 Kgal
Supernate: 0 Kgal
Drainable Interstitial: 67.1 Kgal
Pumped this month: 1.9 Kgal
Total Pumped: 120.2 Kgal
Drainable Liquid Remaining: 67.1 Kgal
Pumpable Liquid Remaining: 64.1 Kgal
Sludge: 343 Kgal
Saltcake: 0

Transfer line plugged on December 31. T-104 totalizer adjustment made on December 29 to reflect approximately 25% lower flow. An over estimate on actual pumped waste volume may occur due to totalizer error; DCRT may not contain total volumes identified.

(b) T-110 - Following information from Cognizant Engineer:

Pumping started May 12, 1997, and was shut down May 29 due to DCRT level and to support PM and maintenance activities. Pumping continues to be shut down to await DCRT pumping, and then pumping is resumed. No pumping in December. A work package is being prepared to repair/replace a leaking valve.

(c) BY-103 - Following information from Cognizant Engineer:

Pumping was completed September 25, 1997, and the tank was declared Interim Stabilized on November 25, 1997.

Total Waste: 414 Kgal
Supernate: 0
Drainable Interstitial: 38.3 Kgal
Total Pumped: 95.9 Kgal
Drainable Liquid Remaining: 38.3 Kgal
Pumpable Liquid Remaining: 31.9 Kgal
Sludge: 5.2 Kgal
Saltcake: 408.8 Kgal

In-tank video taken in February 1997 showed no visible surface liquid and no evidence of an intrusion. The waste was dry and flaky. Dried, caked waste was suspended from many of the pipes and pieces of process equipment. The overall surface of the waste seemed to slump slightly towards the center of the tank.

APPENDIX F

PERFORMANCE SUMMARY

TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 2)

WASTE VOLUMES (Kgallons)

December 31, 1997

INCREASES/DECREASES IN WASTE VOLUMES STORED IN DOUBLE-SHELL TANKS

SOURCE		THIS MONTH	FY1998 TO DATE
B PLANT		0	0
PUREX TOTAL (1)		0	0
PFP (1)		0	0
T PLANT (1)		0	0
S PLANT (1)		0	0
300 AREAS (1)		0	0
400 AREAS (1)		0	0
SULFATE WASTE -100 N (2)		0	0
TRAINING/X-SITE (9)		0	0
TANK FARMS (6)		0	0
SALTWELL LIQUID (8)		0	0
OTHER GAINS		6	50
Slurry increase (3)	3		
Condensate	0		
Instrument change (7)	2		
Unknown (5)	1		
OTHER LOSSES		-33	-106
Slurry decrease (3)	-7		
Evaporation (4)	-22		
Instrument change (7)	0		
Unknown (5)	-4		
EVAPORATED		0	0
GROUTED		0	0
TOTAL		-27	-56

Note: No waste due to BIO (Basis for Interim Operation) implementation

CUMULATIVE EVAPORATION - 1950 TO PRESENT WASTE VOLUME REDUCTION

FACILITY		
242-B EVAPORATOR (10)		7172
242-T EVAPORATOR (1950's) (10)		9181
IN-TANK SOLIDIFICATION UNIT 1 (10)		11876
IN-TANK SOLIDIFICATION UNIT 2 (10)		15295
IN-TANK SOLID. UNIT 1 & 2 (10)		7965
(after conversion of Unit 1 to a cooler for Unit 2)		8833
242-T (Modified) (10)		24471
242-S EVAPORATOR (10)		41983
242-A EVAPORATOR (11)		73689
242-A Evaporator was restarted April 15, 1994, after having been shut down since April 1989.		
Total waste reduction since restart:		9486
Campaign 94-1	2417 Kgal	
Campaign 94-2	2787 Kgal	
Campaign 95-1	2161 Kgal	
Campaign 96-1	1117 Kgal	
Campaign 97-1	351 Kgal	
Campaign 97-2	653 Kgal	

TABLE F-1. PERFORMANCE SUMMARY
(Sheet 2 of 2)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

(1) Including flush

(2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste.

(3) Slurry increase/growth is caused by gas generation within the waste.

(4) Aging waste tanks

(5) Unknown waste gains or losses

(6) Includes Tank Farms miscellaneous flushes

(7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC.

(8) Results from pumping of single-shell tanks to double-shell tanks.

(9) Tracks waste being sent to the double-shell tanks from the "Precampaign Training Run." Evaporator procedures require a training run at least once per year. This also includes pressure testing and flushing of cross-site transfer lines.

WASTE VOLUME REDUCTION

(10) Currently inoperative.

(11) Currently operative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and remained shut down for subsequent upgrading. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake). The evaporator was restarted on April 15, 1994.

TABLE F-2. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANKS

SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANK (DST) SYSTEM FOR DECEMBER 1997: ALL VOLUMES IN KGALS

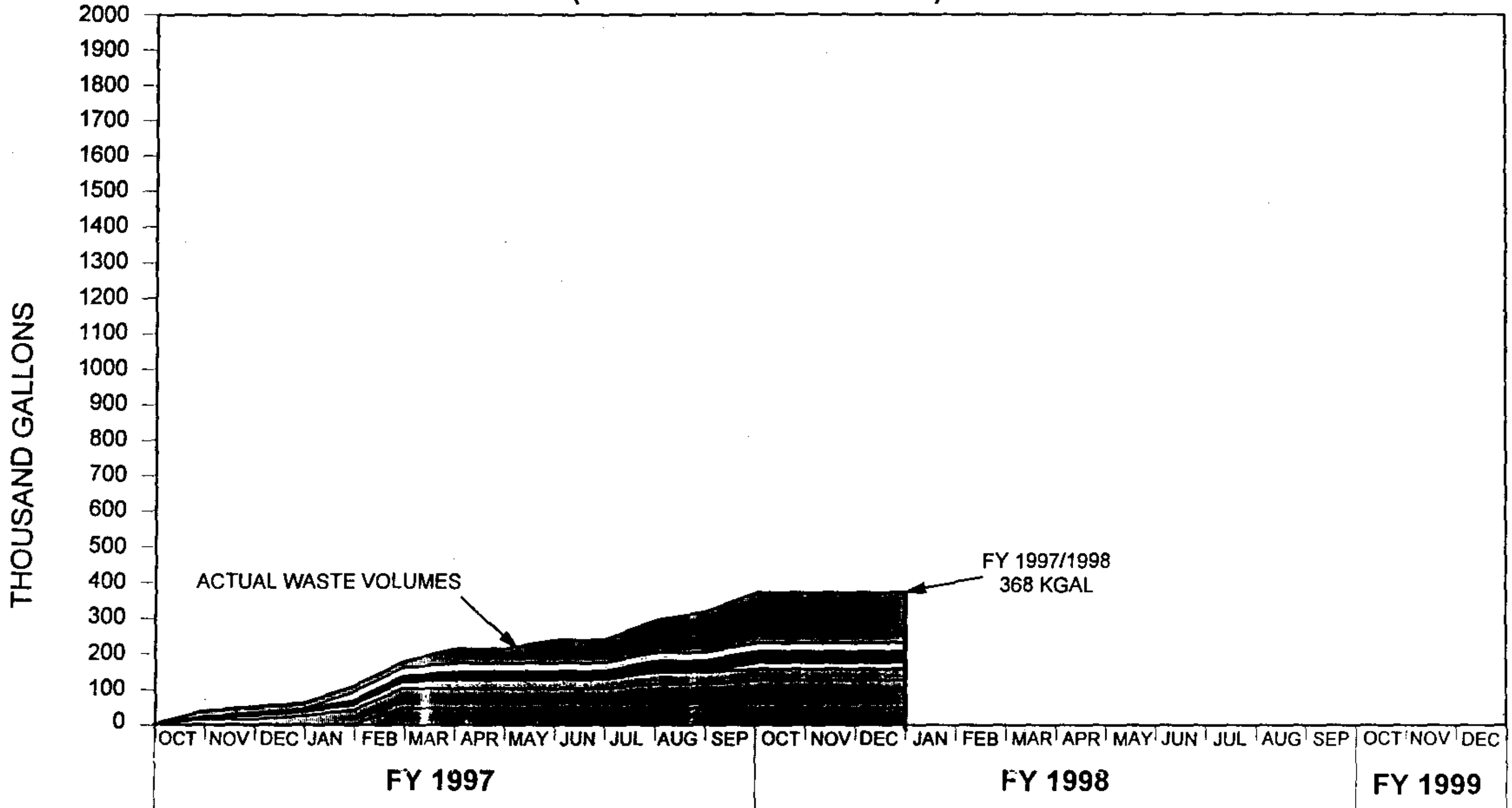
- There was no facility waste transfers to the DST system for December 1997.
- There was a net change of -27 Kgals in the DST system for December 1997.
- The total DST inventory as of December 31, 1997 was 18,297 Kgals.
- There was no Saltwell Liquid (SWL) pumped to the East Area DSTs in December.
- There was no Saltwell Liquid (SWL) pumped to the West Area DSTs (102-SY) in December.

DECEMBER 1997 DST WASTE RECEIPTS					
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH		OTHER LOSSES ASSOCIATED WITH	
TOTAL	+ 0 Kgal	SLURRY	+3 Kgal	SLURRY	-7 Kgal
		CONDENSATE	+0 Kgal	CONDENSATE	-22 Kgal
		INSTRUMENTATION	+2 Kgal	INSTRUMENTATION	-0 Kgal
		UNKNOWN	+1 Kgal	UNKNOWN	-4 Kgal
		TOTAL	+6 Kgal	TOTAL	-33 Kgal

	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS	MISC. DST CHANGES (+/-)	WVR	NET DST CHANGE	TOTAL DST VOLUME
OCT97	0	64	-31	0	-31	18322
NOV97	0	77	2	0	2	18324
DEC97	0	74	-27	0	-27	18297
JAN98		74		0		
FEB98		74		0		
MAR98		74		0		
APR98		85		0		
MAY98		85		0		
JUN98		62		0		
JUL98		62		0		
AUG98		105		0		
SEP98		124		-700		

NOTE: The -700 number in September 1998, is projected Waste Volume Reduction through the 242-A Evaporator

COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES
(ALL VOLUMES IN KGALS)



	FY 1997 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FY 1998 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FY 1999 OCT	NOV	DEC
SWL WEST	17	0	0	0	0	23	0	24	0	25	24	27	0	0	0												
SWL EAST	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0												
100 AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
PFP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
400 AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
300 AREA	0	8	0	4	5	0	0	0	0	9	0	0	0	0	0												
S PLANT	1	0	0	0	0	6	0	0	0	0	0	0	0	0	0												
T PLANT	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0												
TANK FARMS	6	5	0	4	3	7	0	1	0	6	0	5	0	0	0												
B PLANT	14	0	10	15	15	0	0	0	0	13	0	0	0	0	0												
PUREX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
OTHER	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0												

NOTE: The Other Category is For Waste Generations From, Evaporator Tranining, Pressure Tests and Cross-Site Transfers

FACILPAC

FIGURE F-1. COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES
(All volumes in Kgals)

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APPENDIX G

MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

TABLE G-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

December 31, 1997

FACILITY	LOCATION	PURPOSE (receives waste from:)	(Gallons)	MONITORED BY	REMARKS
EAST AREA					
241-A-302-A	A Farm	A-151 DB	975	SACS/ENRAF	Foamed over Catch Tank pump pit & div. box to prevent intrusion
241-ER-311	B Plant	ER-151, ER-152 DB	4231	SACS/CASS/FIC	Increase from drain off from Diversion Box
241-AX-152	AX Farm	AX-152 DB	3630	SACS/MT	DIAL O/S, using MT, pumped to AZ-101 (6/97)
241-AZ-151	AZ Farm	AZ-152 DB, AZ Loop Seal	4611	SACS/CASS/FIC	Volume changes daily - pumped to AZ-102 (11/97))
241-AZ-154	AZ Farm	AZ-102 Htg coil steam condensate	25	SACS/CASS/MT	Automatic Pump
244-BX-TK/SMP	BX Complex	DCRT - Receivers from several farms	19744	SACS/MANUALLY	Using Manual Tape for tank
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	7464	MCS	WTF
A-350	A Farm	Collects drainage	319	SACS/WTF	WTF, pumped 11/97
AR-204	AY Farm	RR Cars during transfer to rec. tanks	740	DIP TUBE	Alarms on CASS
A-417	A Farm	A-702 Process condensate	33506	SACS/DIP TUBE	WTF, pumped 11/97
CR-003-TK/SUMP	C Farm	DCRT	3891	MT/ZIP CORD	Zip cord in sump O/S 3/11/96
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	7452	SACS/CASS/ENRAF	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8159	SACS/CASS/ENRAF	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	1173	SACS/CASS/ENRAF	
241-S-304	S Farm	S-151 DB	141	SACS/RS	10/91, replaced S-302-A, Manual FIC
244-S-TK/SMP	S Farm	DCRT - Receives from several farms	13882	SACS/MANUALLY	CWF
244-TX-TK/SMP	TX Farm	DCRT - Receives from several farms	8871	SACS/MANUALLY	MT
Vent Station Catch Tank		Cross Country Transfer Line	327	SACS/MANUALLY	MT

Total Active Facilities 18

Note: Readings may be taken manually or automatically by FIC (or ENRAF). All FICs and manual ENRAFs connected to CASS. All tanks on CASS (either auto or manual) are also on the SACS database. If automatic connections to CASS are broken, readings are taken manually. Manual readings include readings taken by manual tape, manual FIC, or manual readings of automatic FIC (if CASS is printing "0"). Readings may also be taken by zip cord, which are acceptable but less accurate.

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- FIC - Food Instrument Corporation measurement device
- RS - Robert Shaw Instrument measurement device
- MFIC - Manual FIC
- MT - Manual Tape
- CWF - Weight Factor/SpG = Corrected Weight Factor
- CASS - Computer Automated Surveillance System
- SACS - Surveillance Automated Control System
- MCS - Monitor and Control System
- O/S - Out of Service
- ENRAF - Surface Level Measuring Device

TABLE G-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

December 31, 1997

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5487	CASS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area inactive facilities 18

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- MT - Manual Tape
- CASS - Computer Automated Surveillance System
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

TABLE G-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

December 31, 1997

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	8620	CASS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB.	7612	CASS/FIC *	Assumed Leaker TF-EFS-90-042
			* FIC in Intrusion mode		Partially filled with grout 2/91, determined still assumed leaker after leak test
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	CASS/MT	New MT installed 7/16/93
241-TX-302B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilzed, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND:
- DB - Diversion Box, TB - Transfer Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- FIC - Surface Level Monitoring Device
- MT - Manual Tape
- O/S - Out of Service
- CASS - Computer Automated Surveillance System
- NM - Not Monitored
- ENRAF - Surface Level Monitoring Device

(1) SOURCE: *WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document*

APPENDIX H

LEAK VOLUME ESTIMATES

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 3)

December 31, 1997

Tank No.	Date Declared Confirmed or Assumed Leaker	Volume (Gallons)	Associated KiloCuries 137 cs	Interim Stabilized Date	Leak Estimate Updated	Leak Estimate Reference
241-A-103	1987	5500		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a) (q)
241-A-105	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b),(c)
241-AX-102	1988	3000		09/88	1989	(h)
241-AX-104	1977	--		08/81	1989	(g)
241-B-101	1974	--		03/81	1989	(g)
241-B-103	1978	--		02/85	1989	(g)
241-B-105	1978	--		12/84	1989	(g)
241-B-107	1980	8000		03/85	1986	(d),(f)
241-B-110	1981	10000		03/85	1986	(d)
241-B-111	1978	--		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200		08/81	1984	(e),(f)
241-B-203	1983	300		06/84	1986	(d)
241-B-204	1984	400		06/84	1989	(g)
241-BX-101	1972	--		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	--		08/85	1989	(g)
241-BX-111	1984	--		03/95	1993	(g),(r)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	--		N/A	1989	(g)
241-BY-106	1984	--		N/A	1989	(g)
241-BY-107	1984	15100		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1968	5500		03/84	1989	(g)
241-C-201	1988	550		03/82	1987	(i)
241-C-202	1988	450		08/81	1987	(i)
241-C-203	1984	400		03/82	1986	(d)
241-C-204	1988	350		09/82	1987	(i)
241-S-104	1968	24000		12/84	1989	(g)
241-SX-104	1988	6000		N/A	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108	1962	2400 to 35000	17 to 140 (m)(q)	08/79	1991	(m) (q)
241-SX-109	1965	<10000	<40 (n)	05/81	1992	(n)
241-SX-110	1976	5500		08/79	1989	(g)
241-SX-111	1974	500 to 2000	0.6 to 2.4 (l) (q)	07/79	1986	(d) (q)
241-SX-112	1969	30000	40 (l)	07/79	1986	(d)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	--		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500		04/93	1992	(p)
241-T-103	1974	<1000		11/83	1989	(g)
241-T-106	1973	115000	40 (l)	08/81	1986	(d)
241-T-107	1984	--		05/96	1989	(g)
241-T-108	1974	<1000		11/78	1980	(f)
241-T-109	1974	<1000		12/84	1989	(g)
241-T-111	1979, 1994	<1000		02/95	1994	(f)(t)
241-TX-105	1977	--		04/83	1989	(g)
241-TX-107	1984	2500		10/79	1986	(d)
241-TX-110	1977	--		04/83	1989	(g)
241-TX-113	1974	--		04/83	1989	(g)
241-TX-114	1974	--		04/83	1989	(g)
241-TX-115	1977	--		09/83	1989	(g)
241-TX-116	1977	--		04/83	1989	(g)
241-TX-117	1977	--		03/83	1989	(g)
241-TY-101	1973	<1000		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100	0.05 (q)	12/84	1986	(d) (q)
241-U-112	1980	8500		09/79	1986	(d)
67 Tanks		<600,000 - 900,000				

N/A = not applicable (not yet interim stabilized)

Dashes (--) in Volume column - the total leak volume estimate is approximately 150 Kgal for each of these 19 tanks. Reference (g)

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 2 of 3)

References:

(a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site, Washington*, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.

(b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.

(c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.

(d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

(e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.

(f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.

(g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.

(h) WHC, 1990a, Occurrence Report, *Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102*, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.

(i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.

(j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.

(k) Campbell, G. D., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.

(l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.

(m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.

(n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.

(o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.

(p) WHC, 1992d, Occurrence Report, *Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing*, RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 3)

(q) WHC-1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.

(r) WHC, 1993, Occurrence Report, *Single-Shell Underground Waste Storage Tank 241-BX-111 Surface Level Decrease and Change From Steady State Condition*, RL-WHC-TANKFARM-1993-0035, Westinghouse Hanford Company, Richland, Washington.

(s) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106, WHC-SD-EN-TI-185*, REV OA, Westinghouse Hanford Company, Richland, Washington.

(t) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

APPENDIX I

INTERIM STABILIZATION STATUS
CONTROLLED, CLEAN, AND STABLE STATUS

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

December 31, 1997

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	N/A	
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR (5)	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/85	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR	S-108	SOUND	12/96	JET (7)	TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	01/97	JET (8)	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/95	SN	SX-104	ASMD LKR	N/A		TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN (4)	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/97	JET(10)	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/.81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	07/97	JET(9)	T-104	SOUND	N/A		U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

LEGEND:

AR = Administratively interim stabilized
JET = Saltwell jet pumped to remove drainable interstitial liquid
SN = Supernate pumped (Non-Jet pumped)
N/A = Not yet interim stabilized
ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	119
Not Yet Interim Stabilized	30
Total Single-Shell Tanks	149

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 2 of 3)

Footnotes:

(1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.

(2) Originally, seven tanks (B-104, B-110, B-111, BX-103, T-102, and T-112) did not meet current established supernatant and interstitial liquid interim stabilization criteria, but did meet the criteria in existence when they were declared interim stabilized.

B-110, B-111, U-110 were determined to have met current interim stabilization criteria, per WHC-SD-WM-ER-516-REV 0, "Interim Stabilization Status of SSTs B-104, B-110, B-111, T-102, T-112, and U-110," and WHC-SD-WM-ER-518-REV 0, "Investigation of Liquid Intrusion in 241-BX-103," both dated October 5, 1995.

B-104, BX-103, T-102, T-112 have been determined to meet current interim stabilization criteria as of September 30, 1996, per memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL.

B-202 was determined to no longer meet the current established criteria for 200-series tanks due to a steady increase in the surface level indicating an ongoing intrusion based on a comparison of in-tank videos and subsequent evaluation in March 1996.

(3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-102.

(4) BX-110 was interim stabilized by Supernate Pumping in August 1985. Jet pumping began in December 1993 and soon stopped because of equipment failure. Due to low net volume pumped, major equipment failure, and ALARA, it was decided jet pumping would not resume. An in-tank video was taken in October 1994. Re-evaluation after review of the video indicated 1.5 Kgallons of waste was pumped. (Almost 3 Kgallons of water flushes were needed to produce 1.5 Kgallons tank waste.)

(5) C-105 was interim stabilized administratively on October 30, 1995. No jet pumping occurred in this tank, nor does interstitial liquid level data exist for this tank. There are no diptubes or LOWs installed. Approximately 12 Kgallons of liquid waste was evaporated between May 1993 and October 1995. An in-tank video taken August 30, 1995, revealed a shallow supernatant pool surrounded by a 5-8 foot solids waste shore. The volume of supernate is estimated as 2 Kgallons. The tank currently meets the established criteria for declaring single-shell tanks Interim Stabilized.

(6) T-107 was interim stabilized by Jet Pumping in May 1996. Pumping was completed in March, and an in-tank video taken in May showed no supernate visible on the surface. The surface has an irregular contour of mostly sludge, and the elevation differences between high and low points appear to be about four inches.

(7) S-108 was interim stabilized by Jet Pumping in December 1996. Pumping was completed in September and an in-tank video taken in December showed no supernate visible on the surface of the waste, which appears to be saltcake. The video shows a relatively level surface with some caving and crowning. Total waste is 448.7 Kgallons, with drainable liquids 4.0 Kgallons and no pumpable liquids.

(8) S-110 was interim stabilized by Jet Pumping in January 1997. Pumping was completed in July 1996, and an in-tank video taken in December showed no supernate visible on the surface of the waste, which appears to be saltcake. The level is not consistent and there appears to have been some caving and crowning. Total waste is 389.0 Kgallons, with drainable liquids 29.8 Kgallons and pumpable liquids 23.4 Kgallons.

(9) BY-109 was interim stabilized by Jet Pumping in July 1997. Pumping was completed in May 1997, and an in-tank video taken in June indicated there is a relatively uniform, slightly concave, crusty/cracked contour over most of the surface with no visible supernate. Total waste is 290.0 Kgallons, with drainable liquids 36.7 Kgallons, and pumpable liquids 20.3 Kgallons.

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 3 of 3)

(10) BY-103 was interim stabilized in November 1997, after completion of jet pumping in September. An in-tank video taken in February 1997 showed no visible surface liquid and no evidence of an intrusion. The waste was dry and flaky. Dried, caked waste was suspended from many of the pipes and pieces of process equipment. The overall surface of the waste seemed to slump slightly towards the center of the tank. Total waste is 414 Kgallons, with drainable liquids 38.3 Kgallons, and pumpable liquids 31.9 Kgallons.

TABLE I-2. TRI-PARTY AGREEMENT SINGLE-SHELL TANK INTERIM STABILIZATION SCHEDULE

December 31, 1997

As part of the Controlled, Clean, and Stable mission, the Single-Shell Tank Interim Stabilization Project goal is to mitigate the risk to the environment from a leak release from aging SSTs, by removing as much of the drainable liquid as practical, for safe storage prior to full waste retrieval.

New TPA milestones were negotiated effective October 1, 1996, to allow greater flexibility in the sequencing of tanks, in light of the latest technical information regarding tank waste safety status and watch list concerns.

Milestone	Description	Due Date	Actual Date	Comments
M-41-20	Start Interim Stabilization of 4 Single-Shell Tanks	9/30/96	3/24/96	S-108, S-110, T-104, and T-107 started.
M-41-21	Start Interim Stabilization of 2 Single-Shell Tanks	5/31/97 (1)	5/12/97	BY-109 started 9/10/96; T-110 started 5/12/97
M-41-22	Start Interim Stabilization of 2 Single-Shell Tanks	9/30/97 (2)	9/29/97	BY-103 started 9/29/97 (3), SX-104 started 9/26/97
M-41-23	Start Interim Stabilization of 8 Single-Shell Tanks	3/31/98		Being renegotiated
M-41-24	Start Interim Stabilization of 9 Single-Shell Tanks	9/30/98		Being renegotiated
M-41-25	Start Interim Stabilization of 3 Single-Shell Tanks	3/31/99		Being renegotiated
M-41-26	Start Interim Stabilization of 2 Single-Shell Tanks	9/30/99		Being renegotiated
M-41-27	Complete Saltwell Pumping of Single-Shell Tanks	9/30/00		

(1) On March 13, DOE signed Change Order Form M1-96-03, extending M-41-21 from March 31 to May 31, 1997.

(2) Change Request sent to Ecology on June 27, 1997; Dispute Resolution invoked on September 16, 1997. Proposed milestone is "Start Interim Stabilization of 2 Single-Shell Tanks," by September 30, 1997. Dispute Resolution invokes the entire M-41-00 milestone and may modify the end major milestone date. In the event that M-41-00 is successfully renegotiated, M-41-22 may change from the proposed 2 tank start-up on September 30, 1997.

(3) Start-up on BY-103 commenced September 29, 1997; a pump failure was immediately identified. After evaluation, this tank was declared interim stabilized in November 1997.

TABLE I-3. SINGLE-SHELL TANKS CONTROLLED, CLEAN, AND STABLE (CCS) STATUS

December 31, 1997

The Controlled, Clean, and Stable (CCS) Mission Goals are to substantially reduce the operations and maintenance costs for the Single-Shell Tank Farms, to operate within the safety envelope, remove pumpable liquid wastes and contaminated soils/debris, and to achieve compliance with near-term regulatory requirements.

Facility	Completion Due	Completed	Comments
TY-Farm	December 29, 1995	December 29, 1995	Officially designated CCS in March 1996
BX-Farm	September 30, 1996	September 19, 1996	BX-103 has been declared to have met current interim stabilization criteria, and is therefore included in CCS
TX-Farm	September 30, 1996	September 17, 1996	
T-Farm (1)	June 30, 1997		
B-Farm (1)	September 30, 1997		
BY-Farm (1)	September 30, 1997		

(1) Controlled, clean, and stable activities have been deferred on these tank farms until funding is available

TABLE I-4. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

December 31, 1997

Partial Interim Isolated (PI)

EAST AREA

A-101
A-102

AX-101

BY-102
BY-103
BY-105
BY-106
BY-109

C-103
C-105
C-106

East Area	11

WEST AREA

S-101
S-102
S-103
S-105
S-106
S-107
S-108
S-109
S-110
S-111
S-112

SX-101
SX-102
SX-103
SX-104
SX-105
SX-106

T-101
T-104
T-107
T-110
T-111

U-102
U-103
U-105
U-106
U-107
U-108
U-109
U-110
U-111

West Area	30
Total	41

Intrusion Prevention Completed (IP)

EAST AREA

A-103
A-104
A-105
A-106

AX-102
AX-103
AX-104

B-FARM - 16 tanks
BX-FARM - 12 tanks

BY-101
BY-104
BY-107
BY-108
BY-110
BY-111
BY-112

C-101
C-102
C-104
C-107
C-108
C-109
C-110
C-111
C-112
C-201
C-202
C-203
C-204

East Area	55

WEST AREA

S-104
S-105

SX-107
SX-108
SX-109
SX-110
SX-111
SX-112
SX-113
SX-114
SX-115

T-102
T-103
T-105
T-106
T-108
T-109
T-112
T-201
T-202
T-203
T-204

TX-FARM - 18 tanks
TY-FARM - 6 tanks

U-101
U-104
U-112
U-102
U-202
U-203
U-204

West Area	53
Total	108

Interim Stabilized (IS)

EAST AREA

A-102
A-103
A-104
A-105
A-106

AX-102
AX-103
AX-104

B-FARM - 16 tanks
BX-FARM - 12 tanks

BY-101
BY-102
BY-103
BY-104
BY-107
BY-108
BY-109
BY-110
BY-111
BY-112

C-101
C-102
C-104
C-105
C-107
C-108
C-109
C-110
C-111
C-112
C-202
C-202
C-203
C-204

East Area	60

WEST AREA

S-104
S-105
S-108
S-110

SX-107
SX-108
SX-109
SX-110
SX-111
SX-112
SX-113
SX-114
SX-115

T-101
T-102
T-103
T-105
T-106
T-107
T-108
T-109
T-111
T-112
T-201
T-202
T-203
T-204

TX-FARM - 18 tanks
TY-FARM - 6 tanks

U-101
U-104
U-110
U-112
U-201
U-202
U-203
U-204

West Area	59
Total	119

Controlled, Clean, and Stable (CCS)

EAST AREA	WEST AREA
BX-FARM - 12 Tanks	TX-FARM - 18 tanks
	TY FARM - 6 tanks
Total	36 tanks

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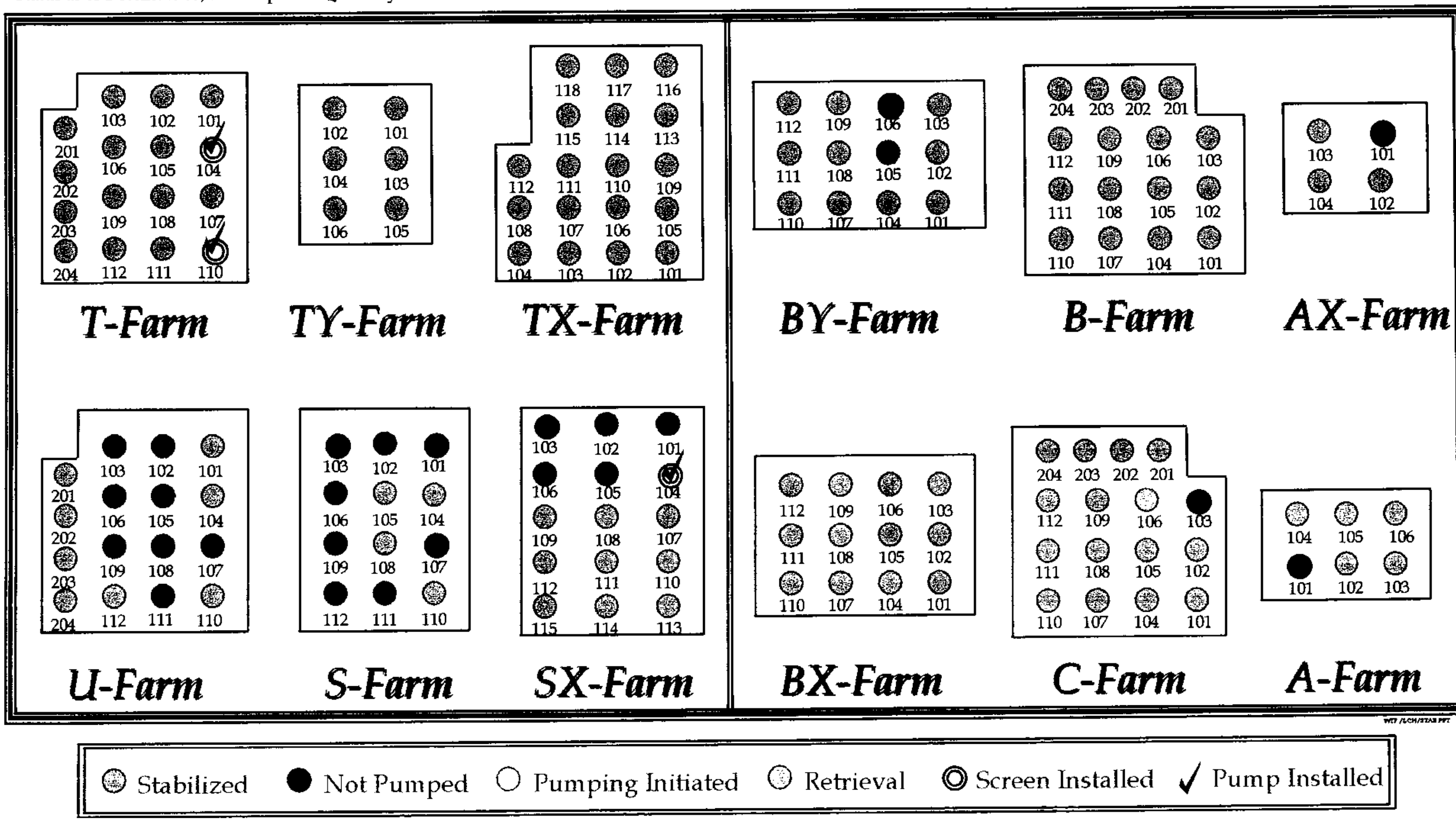
SINGLE SHELL TANK FARMS
Interim Stabilization Progress Status

Interim Stabilized	119
Pumping Initiated	3
Retrieval	1
Not Pumped	26
TOTAL SSTs	**149**

Status as of December 31, 1997- Updated Quarterly



HNF-EP-0182-117

Figure I-1. SINGLE SHELL TANKS INTERIM STABILIZATION PROGRESS STATUS

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APPENDIX J

CHARACTERIZATION PROGRESS STATUS

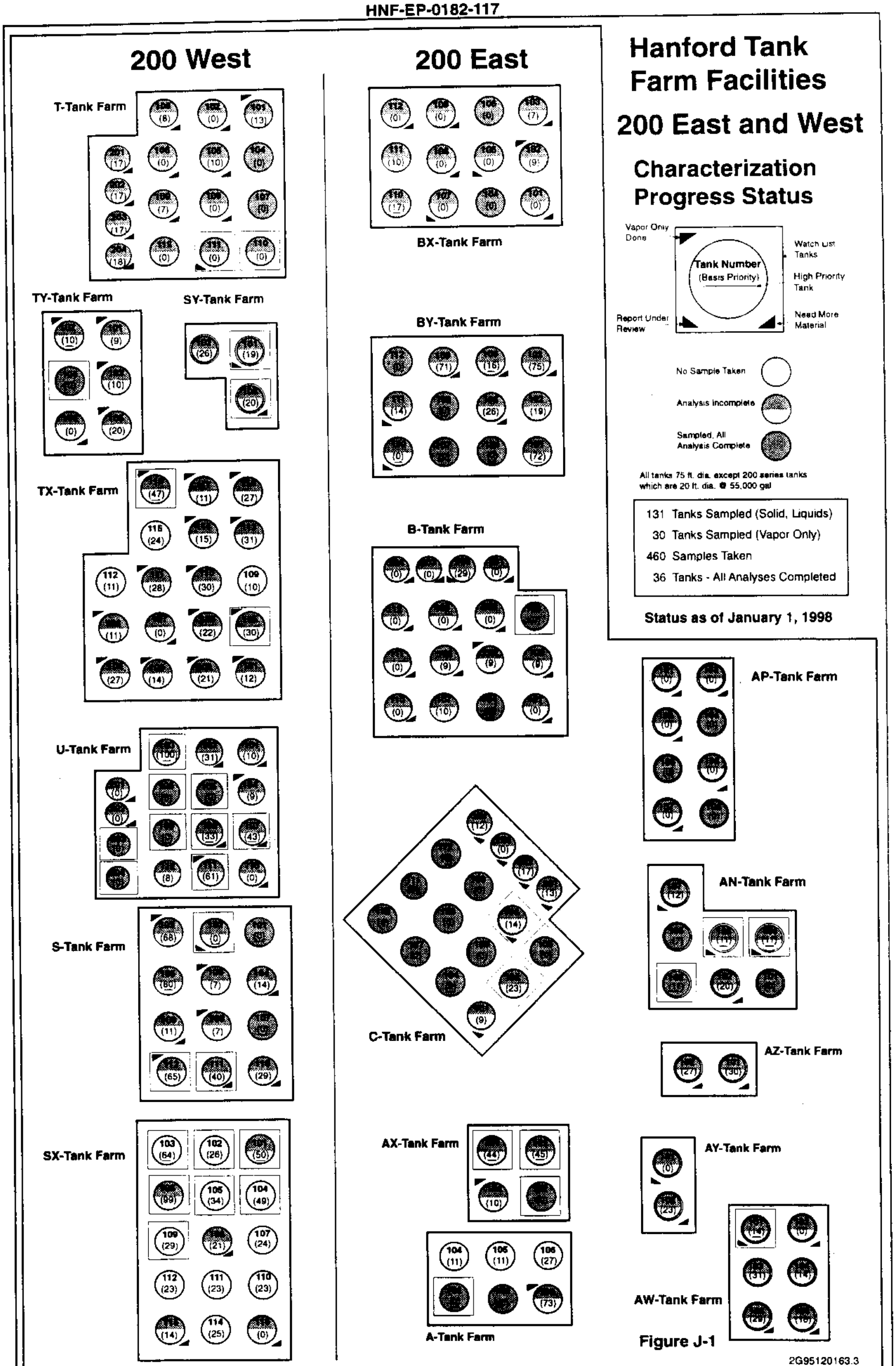
200 West
200 East
Hanford Tank Farm Facilities
200 East and West
Characterization Progress Status
Vapor Only Done
Watch List Tanks
Tank Number
(Basis Priority)
High Priority Tank
Report Under Review
Need More Material
No Sample Taken
Analysis Incomplete
Sampled, All Analysis Complete
All tanks 75 ft. dia. except 200 series tanks which are 20 ft. dia. @ 55,000 gal
131 Tanks Sampled (Solid, Liquids)
30 Tanks Sampled (Vapor Only)
460 Samples Taken
36 Tanks - All Analyses Completed
Status as of January 1, 1998
T-Tank Farm
TY-Tank Farm
SY-Tank Farm
TX-Tank Farm
U-Tank Farm
S-Tank Farm
SX-Tank Farm
BX-Tank Farm
BY-Tank Farm
B-Tank Farm
C-Tank Farm
AX-Tank Farm
A-Tank Farm
AP-Tank Farm
AN-Tank Farm
AZ-Tank Farm
AY-Tank Farm
AW-Tank Farm
2G95120163.3

Figure J-1

FIGURE J-1. CHARACTERIZATION PROGRESS STATUS CHART LEGEND
(Sheet 2 of 2)

December 31, 1997

200 East/West	The chart divides the two areas.
Tank Farms	Each tank farm is represented by a rough schematic of the tank layout and a heading naming the farm.
Circles	Tanks are depicted by a circle for single-shell tanks and a double circle for double-shell tanks.
Boxes	A thin line box around a tank inside a tank farm denotes "Watch List" status, in concurrence with Table A-1 of this document.
Numbers in Circles	The top number is the tank number. The number in parentheses is a weighted priority number, described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." The numbers can be compared to each other to gain appreciation of relative priority: the higher the number, the greater the priority to sample and analyze.
Underlined Numbers	If a number in parenthesis is underlined, it is denoted as a "Characterization Basis Tank," as described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." These are key tanks taken from the priority list that are of principal interest to the Characterization Program.
Circle Shading	The shading in the circle indicates the degree to which sampling and analysis are complete per requirements described in applicable Data Quality Objectives (DQOs). If blank, no characterization sampling has taken place. If fully shaded, the sampling and analysis are complete for each DQO applicable to that tank. Tanks in which characterization has begun but is not complete are designated by being half shaded.
Corner Triangles	Small triangles near a tank circle give further information on half-shaded tanks. Upper left corner triangles indicate that vapor samples have been taken from the tank. Lower left-hand corner triangles indicate that the tank has been sampled, analyzed, and a formal report has been written on the condensed phase sampling. Further status of the tank will be determined after review of the report is complete. Lower right-hand corner triangles indicate that some review has been completed and it has been determined that more sampling is needed to resolve the DQO requirements. Absence of triangles from a half shaded tank indicates recent condensed phase sampling.

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